August 04, 2017

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

TEL: (916) 786-3302
FAX:

Workorder No.: N025072

RE: PG&E Topock - PMP, RC000753.801B

Attention: Dan Bush

Enclosed are the results for sample(s) received on July 18, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Lubucaw for

Puri Romualdo
Laboratory Director

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SAMPLE RECEIVING/GENERAL COMMENTS

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

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

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

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

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N025072-001B-MS2 and N025072-001B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) is outside recovery criteria for Iron in QC sample N025046-002B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *04-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025072
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025072-001A	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-001B	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-001C	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-001D	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-002A	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017
N025072-002B	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017
N025072-002C	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017
N025072-002D	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170719F**	QC Batch: **R116440**			PrepDate			Analyst: **LR**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	7/19/2017 11:20 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170719F**	QC Batch: **R116440**			PrepDate			Analyst: **LR**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	7/19/2017 11:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N025072-002CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**116440**
Client ID:	**ZZZZZZ**	Batch ID:	**R116440**	TestNo:	**EPA 120.1**			Analysis Date:	**7/19/2017**	SeqNo:	**2696718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7420.000	0.10						7450	0.403	10	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170719E**	QC Batch: **R116439**			PrepDate			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	7/19/2017 11:10 AM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	7/19/2017 11:10 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170719E**	QC Batch: **R116439**			PrepDate			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	7/19/2017 11:10 AM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	7/19/2017 11:10 AM

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025072-002CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **116439**
Client ID: **ZZZZZZ** Batch ID: **R116439** TestNo: **SM4500-H+B** Analysis Date: **7/19/2017** SeqNo: **2696715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.420	0.10						7.420	0	10	H
Temp. at time of pH Analysis	22.800	0.10						23.00	0.873	10	H

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170719G**	QC Batch: **62932**				PrepDate	**7/19/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2600	25	25		mg/L	1	7/19/2017 01:09 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170719G**	QC Batch: **62932**			PrepDate	**7/19/2017**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4700	50	50		mg/L	1	7/19/2017 01:09 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-62932**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/19/2017**	RunNo: **116441**
Client ID: **LCSW**	Batch ID: **62932**	TestNo: **SM2540C**		Analysis Date: **7/19/2017**	SeqNo: **2698249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	975.000	10	1000	0	97.5	80	120				

Sample ID **MB-62932**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/19/2017**	RunNo: **116441**
Client ID: **PBW**	Batch ID: **62932**	TestNo: **SM2540C**		Analysis Date: **7/19/2017**	SeqNo: **2698250**

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

Sample ID **N025072-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/19/2017**	RunNo: **116441**
Client ID: **ZZZZZZ**	Batch ID: **62932**	TestNo: **SM2540C**		Analysis Date: **7/19/2017**	SeqNo: **2698256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4875.000	50						4710	3.44	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170719A** QC Batch: **R116512**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	7/19/2017 10:40 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170723C** QC Batch: **62969**				PrepDate	**7/21/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	7/24/2017 05:18 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM							
			SM 3500-CR B				
RunID: **NV00922-WC_170801A** QC Batch: **R116785**				PrepDate			Analyst: **QBM**
Chromium, Hexavalent	560	6.9	50		µg/L	5	8/1/2017
DISSOLVED METALS BY ICP-MS							
			EPA 3010A	**EPA 6020**			
RunID: **NV00922-ICP7_170723C** QC Batch: **62969**				PrepDate	**7/21/2017**		Analyst: **CEI**
Chromium	570	0.096	5.0		µg/L	5	7/24/2017 08:53 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R116512	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512		
Client ID:	PBW	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700106		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	ND	0.20											

Sample ID	LCS-R116512	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512		
Client ID:	LCSW	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700107		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	5.130	0.20	5.000	0	103	90	110						

Sample ID	N025072-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512		
Client ID:	ZZZZZZ	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700114		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.084	0.20	1.000	0	108	90	110						

Sample ID	N025072-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512		
Client ID:	ZZZZZZ	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700115		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.073	0.20	1.000	0	107	90	110	1.084	0.992	20			

Sample ID	N025073-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512		
Client ID:	ZZZZZZ	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700132		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	11.392	0.20	5.000	6.263	103	90	110						

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025073-003ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512
Client ID:	ZZZZZZ	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700133

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.371	0.20						2.390	0.819	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID	LCS-R116785	SampType:	LCS	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	LCSW	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717123

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	99.868	10	100.0	0	99.9	85	115				

Sample ID	MB-R116785	SampType:	MBLK	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	PBW	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717124

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID	N025072-002ADUP	SampType:	DUP	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	ZZZZZZ	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717126

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	555.435	50						555.0	0.0765	20	

Sample ID	N025072-002AMS	SampType:	MS	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	ZZZZZZ	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717127

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1050.540	50	500.0	555.0	99.1	85	115				

Sample ID	N025072-002AMSD	SampType:	MSD	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	ZZZZZZ	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717128

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1050.990	50	500.0	555.0	99.2	85	115	1051	0.0428	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-62969	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	PBW	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702348

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

Sample ID	LCS-62969	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	LCSW	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702349

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.000	1.0	10.00	0	100	85	115				

Sample ID	N024981-002B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	ZZZZZZ	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702358

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.661	1.0	10.00	0.2113	94.5	75	125				

Sample ID	N024981-002B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	ZZZZZZ	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702359

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.505	1.0	10.00	0.2113	92.9	75	125	9.661	1.63	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170721A**	QC Batch: **R116492**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	7/21/2017 09:30 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170721A**	QC Batch: **R116492**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	7/21/2017 09:30 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R116492**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **LCSW**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.458	5.0	100.0	0	97.5	85	115				

Sample ID **MB-R116492**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **PBW**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708041**

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

Sample ID **N025072-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **ZZZZZZ**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	216.102	5.0						216.1	0	30	

Sample ID **N025072-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **ZZZZZZ**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	241.525	5.0	100.0	147.2	94.3	75	125				

Sample ID **N025072-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **ZZZZZZ**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	243.644	5.0	100.0	147.2	96.4	75	125	241.5	0.873	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Chloride	1000	1.8	100		mg/L	200	7/25/2017 12:30 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Sulfate	370	1.1	25		mg/L	50	7/25/2017 12:14 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	7/25/2017 01:00 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	7/25/2017 12:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R116605_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	PBW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705545

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.121	0.50									

Sample ID	LCS-R116605_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	LCSW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.174	0.50	2.000	0	109	90	110				

Sample ID	N025094-015AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705552

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	101.304	10	40.00	59.75	104	80	120				

Sample ID	N025094-015AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705553

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	101.394	10	40.00	59.75	104	80	120	101.3	0.0888	20	

Sample ID	N025094-012ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	121.840	25						123.5	1.32	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	N025094-013AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	94.924	10	40.00	54.29	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R116605_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	PBW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705587

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

Sample ID	LCS-R116605_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	LCSW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.035	0.50	4.000	0	101	90	110				

Sample ID	N025094-015AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705594

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	186.172	10	80.00	107.4	98.5	80	120				

Sample ID	N025094-015AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	186.464	10	80.00	107.4	98.9	80	120	186.2	0.157	20	

Sample ID	N025094-012ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705597

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	247.255	25						248.3	0.414	20	

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N025094-013AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705599

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	145.084	10	80.00	67.25	97.3	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170801B**	QC Batch: **R116796**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	8/1/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170801B**	QC Batch: **R116796**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	3.0	0.11	0.25		mg/L	5	8/1/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R116796	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	PBW	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717868

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

Sample ID	LCS-R116796	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	LCSW	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.485	0.050	0.5000	0	97.1	85	115				

Sample ID	N025072-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	ZZZZZZ	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717871

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

Sample ID	N025072-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	ZZZZZZ	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717872

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.530	0.050	0.5000	0	106	75	125				

Sample ID	N025072-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	ZZZZZZ	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.569	0.050	0.5000	0	114	75	125	0.5296	7.24	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP

EPA 3010A **EPA 6010B**

RunID: **NV00922-ICP2_170721C** QC Batch: **62950** PrepDate **7/20/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Calcium	140000	28	500		ug/L	1	7/21/2017 05:22 PM
Iron	400	1.8	20		ug/L	1	7/21/2017 05:22 PM
Magnesium	33000	4.4	100		ug/L	1	7/21/2017 05:22 PM
Sodium	710000	660	12000		ug/L	25	7/25/2017 09:38 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170721C**	QC Batch: **62950**			PrepDate	**7/20/2017**		Analyst: **CEI**
Calcium	110000	28	500		ug/L	1	7/21/2017 10:39 PM
Iron	130	1.8	20		ug/L	1	7/21/2017 10:39 PM
Magnesium	17000	4.4	100		ug/L	1	7/21/2017 10:39 PM
Sodium	1400000	1300	25000		ug/L	50	7/25/2017 10:01 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **MB-62950**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116522**
Client ID: **PBW**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/21/2017**	SeqNo: **2700644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	32.879	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS-62950**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116522**
Client ID: **LCSW**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/21/2017**	SeqNo: **2700645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9156.056	500	10000	0	91.6	85	115				
Iron	110.210	20	100.0	0	110	85	115				
Magnesium	9249.310	100	10000	0	92.5	85	115				

Sample ID **N025046-002B-MS**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116522**
Client ID: **ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/21/2017**	SeqNo: **2700653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	97175.354	500	10000	86310	109	75	125				
Iron	272.658	20	100.0	198.5	74.1	75	125				S
Magnesium	26898.394	100	10000	17460	94.3	75	125				

Sample ID **N025046-002B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116522**
Client ID: **ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/21/2017**	SeqNo: **2700654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	98789.005	500	10000	86310	125	75	125	97180	1.65	20	
Iron	277.076	20	100.0	198.5	78.5	75	125	272.7	1.61	20	
Magnesium	27243.656	100	10000	17460	97.8	75	125	26900	1.28	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	MB-62950	SampType:	MBLK	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	7/20/2017	RunNo:	116597
Client ID:	PBW	Batch ID:	62950	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/25/2017	SeqNo:	2705090

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

Sample ID	LCS2-62950	SampType:	LCS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	7/20/2017	RunNo:	116597
Client ID:	LCSW	Batch ID:	62950	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/25/2017	SeqNo:	2705091

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20508.336	500	20000	0	103	85	115				

Sample ID	N025072-001B-MS2	SampType:	MS	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	7/20/2017	RunNo:	116597
Client ID:	ZZZZZZ	Batch ID:	62950	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/25/2017	SeqNo:	2705099

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	717373.953	12000	20000	712500	24.5	75	125				S

Sample ID	N025072-001B-MSD	SampType:	MSD	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:	7/20/2017	RunNo:	116597
Client ID:	ZZZZZZ	Batch ID:	62950	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	7/25/2017	SeqNo:	2705100

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	693200.034	12000	20000	712500	-96.3	75	125	717400	3.43	20	S

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170723D**	QC Batch: **62969**			PrepDate	**7/21/2017**		Analyst: **CEI**
Manganese	240	0.28	2.5		µg/L	5	7/24/2017 08:48 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170723D**	QC Batch: **62969**			PrepDate	**7/21/2017**		Analyst: **CEI**
Manganese	9.8	0.056	0.50		µg/L	1	7/24/2017 05:34 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-62969**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **PBW**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702458**

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

Sample ID **LCS-62969**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **LCSW**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702459**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.919	0.50	100.0	0	94.9	85	115				

Sample ID **N024981-002B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **ZZZZZZ**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	134.345	0.50	100.0	43.51	90.8	75	125				

Sample ID **N024981-002B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **ZZZZZZ**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	135.305	0.50	100.0	43.51	91.8	75	125	134.3	0.712	20	

Qualifiers:

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

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD / RTNE / 1 Chilled: Y
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; darrin.weaver@citizen.com	Address:	Geotracker / RWQCB ✓ / 2 Headspace
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	PO #:	Labspec / CalTrans / 3 Container Intact
Submitted By: Jacqueline Mc	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:	Others ✓ / LEVEL III / 4 Seal Present
Title: Sample Tech				Specify: RWQCB / LEVEL IV / 5 IR number
Signature: Date: 7/18/17	Sampled By: Jacqueline Mc			Global ID: / Regulatory / 6 Method of Cooling: Ice
I Hereby authorize ASSET Labs to perform the tests indicated below	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State: / Sample Temp: 3-5°C
Project Name: PG&E Topock - PMP	Signature: Date: 7/18/17			
Project Number: RC000753.801B				

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

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (SM3500-CrB) (NH4)2, SO4, NH4, OH 250 mL poly	Dissolved metals (SW6020A) FF; HNO3, 500 mL poly Cr	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 1 L poly Ca, Mg, Mn, Fe, Na	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 1 L poly As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B), HNO3 500 mL poly Fe	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025072 - 01	PE-01-0717	7/18/17	1105		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	- 02	TW-03D-0717	7/18/17	1055			X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Courier:
Tracking No:

Relinquished by (Signature and Printed Name):	Date/Time: 7/18/17	Received by (Signature and Printed Name):	Date/Time: 7/18/17 1610
Relinquished by (Signature and Printed Name):	Date/Time: 7/18/17 1900	Received by (Signature and Printed Name):	Date/Time: 7/18/17 1909
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

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

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

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

Terms:
1 All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report
2 Regular TAT is 5-7 business days surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=60% 3 Workdays=35 % 4 Workdays=20%
3 Custom EDD formats will be an additional 3% of the total project price
4 Add 10% surcharge for Level III Data Packages 15% for Level IV Data Packages Surcharge applied on total project price
5 Trip Blanks and Equipment Blanks are billable sample
6 Asset Laboratories is not responsible for samples collected using incorrect methodology
7 Terms are net 30 days
8 All reports are submitted in electronic format Please inform ASSET Laboratories if hard copy of report is needed
9 For subcontract analysis TAT and Surcharges will vary

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	7/18/2017	Workorder:	N025072
Rep sample Temp (Deg C):	3.5	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed By MBC MBC 7/24/2017

Reviewed By: 8/02/2017

ASSET Laboratories

WORK ORDER Summary

28-Jul-17

WorkOrder: N025072

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 7/18/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025072-001A	PE-01-0717	7/18/2017 11:05:00 AM	8/1/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025072-001B			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025072-001C			8/1/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/1/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/1/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/1/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/1/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N025072-001D			8/1/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025072-002A	TW-03D-0717	7/18/2017 10:55:00 AM	8/1/2017		SM 3500-Cr B	HEXAVALENT CHROMIUM	☐	☐	☐	WW
N025072-002B			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025072-002C			8/1/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/1/2017		SM4500-H+B	pH	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jul-17

WorkOrder: N025072

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 7/18/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025072-002C	TW-03D-0717	7/18/2017 10:55:00 AM	8/1/2017	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/1/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/1/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N025072-002D			8/1/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025072-003A	FOLDER	8/1/2017	8/1/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/1/2017		Folder	Folder	☐	☐	☐	LAB
			8/1/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801B

ASSET Laboratories Work Order:

N025072

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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August 04, 2017

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

TEL: (916) 786-3302
FAX:

Workorder No.: N025072

RE: PG&E Topock - PMP, RC000753.801B

Attention: Dan Bush

Enclosed are the results for sample(s) received on July 18, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Lubucaw for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025072

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

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

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

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

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

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N025072-001B-MS2 and N025072-001B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) is outside recovery criteria for Iron in QC sample N025046-002B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET LABORATORIES
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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *04-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025072
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025072-001A	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-001B	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-001C	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-001D	PE-01-0717	Groundwater	7/18/2017 11:05:00 AM	7/18/2017	8/4/2017
N025072-002A	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017
N025072-002B	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017
N025072-002C	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017
N025072-002D	TW-03D-0717	Groundwater	7/18/2017 10:55:00 AM	7/18/2017	8/4/2017

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170719F**	QC Batch: **R116440**			PrepDate			Analyst: **LR**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	7/19/2017 11:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170719F**	QC Batch: **R116440**			PrepDate			Analyst: **LR**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	7/19/2017 11:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N025072-002CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:				RunNo: **116440**		
Client ID: **ZZZZZZ**	Batch ID: **R116440**	TestNo: **EPA 120.1**		Analysis Date: **7/19/2017**				SeqNo: **2696718**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7420.000	0.10						7450	0.403	10	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170719E**	QC Batch: **R116439**			PrepDate			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	7/19/2017 11:10 AM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	7/19/2017 11:10 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170719E**	QC Batch: **R116439**			PrepDate			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	7/19/2017 11:10 AM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	7/19/2017 11:10 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025072-002CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **116439**
Client ID: **ZZZZZZ** Batch ID: **R116439** TestNo: **SM4500-H+B** Analysis Date: **7/19/2017** SeqNo: **2696715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.420	0.10						7.420	0	10	H
Temp. at time of pH Analysis	22.800	0.10						23.00	0.873	10	H

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170719G**	QC Batch: **62932**				PrepDate	**7/19/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2600	25	25		mg/L	1	7/19/2017 01:09 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170719G**	QC Batch: **62932**				PrepDate	**7/19/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4700	50	50		mg/L	1	7/19/2017 01:09 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-62932**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/19/2017**	RunNo: **116441**
Client ID: **LCSW**	Batch ID: **62932**	TestNo: **SM2540C**		Analysis Date: **7/19/2017**	SeqNo: **2698249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	975.000	10	1000	0	97.5	80	120				

Sample ID **MB-62932**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/19/2017**	RunNo: **116441**
Client ID: **PBW**	Batch ID: **62932**	TestNo: **SM2540C**		Analysis Date: **7/19/2017**	SeqNo: **2698250**

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

Sample ID **N025072-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **7/19/2017**	RunNo: **116441**
Client ID: **ZZZZZZ**	Batch ID: **62932**	TestNo: **SM2540C**		Analysis Date: **7/19/2017**	SeqNo: **2698256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4875.000	50						4710	3.44	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170719A** QC Batch: **R116512**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	7/19/2017 10:40 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170723C** QC Batch: **62969**				PrepDate	**7/21/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	7/24/2017 05:18 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM							
			SM 3500-CR B				
RunID: **NV00922-WC_170801A**	QC Batch: **R116785**			PrepDate			Analyst: **QBM**
Chromium, Hexavalent	560	6.9	50		µg/L	5	8/1/2017
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_170723C**	QC Batch: **62969**			PrepDate	**7/21/2017**		Analyst: **CEI**
Chromium	570	0.096	5.0		µg/L	5	7/24/2017 08:53 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R116512**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **PBW**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700106**

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

Sample ID **LCS-R116512**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **LCSW**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.130	0.20	5.000	0	103	90	110				

Sample ID **N025072-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.084	0.20	1.000	0	108	90	110				

Sample ID **N025072-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.073	0.20	1.000	0	107	90	110	1.084	0.992	20	

Sample ID **N025073-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.392	0.20	5.000	6.263	103	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025073-003ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116512
Client ID:	ZZZZZZ	Batch ID:	R116512	TestNo:	EPA 218.6			Analysis Date:	7/19/2017	SeqNo:	2700133

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.371	0.20						2.390	0.819	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID	LCS-R116785	SampType:	LCS	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	LCSW	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717123

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	99.868	10	100.0	0	99.9	85	115				

Sample ID	MB-R116785	SampType:	MBLK	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	PBW	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717124

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	10									

Sample ID	N025072-002ADUP	SampType:	DUP	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	ZZZZZZ	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717126

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	555.435	50						555.0	0.0765	20	

Sample ID	N025072-002AMS	SampType:	MS	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	ZZZZZZ	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717127

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1050.540	50	500.0	555.0	99.1	85	115				

Sample ID	N025072-002AMSD	SampType:	MSD	TestCode:	3500_CrBPG	Units:	µg/L	Prep Date:		RunNo:	116785
Client ID:	ZZZZZZ	Batch ID:	R116785	TestNo:	SM 3500-Cr B			Analysis Date:	8/1/2017	SeqNo:	2717128

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	1050.990	50	500.0	555.0	99.2	85	115	1051	0.0428	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-62969	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	PBW	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702348

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

Sample ID	LCS-62969	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	LCSW	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702349

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.000	1.0	10.00	0	100	85	115				

Sample ID	N024981-002B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	ZZZZZZ	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702358

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.661	1.0	10.00	0.2113	94.5	75	125				

Sample ID	N024981-002B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	7/21/2017	RunNo:	116550
Client ID:	ZZZZZZ	Batch ID:	62969	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/24/2017	SeqNo:	2702359

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.505	1.0	10.00	0.2113	92.9	75	125	9.661	1.63	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170721A**	QC Batch: **R116492**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	7/21/2017 09:30 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170721A**	QC Batch: **R116492**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	7/21/2017 09:30 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R116492**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **LCSW**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.458	5.0	100.0	0	97.5	85	115				

Sample ID **MB-R116492**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **PBW**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708041**

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

Sample ID **N025072-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **ZZZZZZ**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708043**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	216.102	5.0						216.1	0	30	

Sample ID **N025072-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **ZZZZZZ**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	241.525	5.0	100.0	147.2	94.3	75	125				

Sample ID **N025072-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116492**
Client ID: **ZZZZZZ**	Batch ID: **R116492**	TestNo: **SM 2320 B**		Analysis Date: **7/21/2017**	SeqNo: **2708046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	243.644	5.0	100.0	147.2	96.4	75	125	241.5	0.873	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 11:05:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Chloride	1000	1.8	100		mg/L	200	7/25/2017 12:30 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Sulfate	370	1.1	25		mg/L	50	7/25/2017 12:14 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	7/25/2017 01:00 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170724A** QC Batch: **R116605**				PrepDate			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	7/25/2017 12:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R116605_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	PBW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705545

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.121	0.50									

Sample ID	LCS-R116605_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	LCSW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.174	0.50	2.000	0	109	90	110				

Sample ID	N025094-015AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705552

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	101.304	10	40.00	59.75	104	80	120				

Sample ID	N025094-015AMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705553

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	101.394	10	40.00	59.75	104	80	120	101.3	0.0888	20	

Sample ID	N025094-012ADUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	121.840	25						123.5	1.32	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	N025094-013AMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	94.924	10	40.00	54.29	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R116605_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	PBW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705587

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

Sample ID	LCS-R116605_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	LCSW	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.035	0.50	4.000	0	101	90	110				

Sample ID	N025094-015AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705594

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	186.172	10	80.00	107.4	98.5	80	120				

Sample ID	N025094-015AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	186.464	10	80.00	107.4	98.9	80	120	186.2	0.157	20	

Sample ID	N025094-012ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705597

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	247.255	25						248.3	0.414	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N025094-013AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ZZZZZZ	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705599

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	145.084	10	80.00	67.25	97.3	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170801B**	QC Batch: **R116796**			PrepDate			Analyst: **RB**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	8/1/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0717
Lab Order:	N025072	**Collection Date:**	7/18/2017 10:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025072-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170801B**	QC Batch: **R116796**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	3.0	0.11	0.25		mg/L	5	8/1/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R116796	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	PBW	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717868

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

Sample ID	LCS-R116796	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	LCSW	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.485	0.050	0.5000	0	97.1	85	115				

Sample ID	N025072-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	ZZZZZZ	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717871

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

Sample ID	N025072-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	ZZZZZZ	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717872

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.530	0.050	0.5000	0	106	75	125				

Sample ID	N025072-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	116796
Client ID:	ZZZZZZ	Batch ID:	R116796	TestNo:	SM4500-NO3			Analysis Date:	8/1/2017	SeqNo:	2717873

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.569	0.050	0.5000	0	114	75	125	0.5296	7.24	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170721C**	QC Batch: **62950**			PrepDate	**7/20/2017**		Analyst: **CEI**
Calcium	140000	28	500		ug/L	1	7/21/2017 05:22 PM
Iron	400	1.8	20		ug/L	1	7/21/2017 05:22 PM
Magnesium	33000	4.4	100		ug/L	1	7/21/2017 05:22 PM
Sodium	710000	660	12000		ug/L	25	7/25/2017 09:38 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170721C**	QC Batch: **62950**			PrepDate	**7/20/2017**		Analyst: **CEI**
Calcium	110000	28	500		ug/L	1	7/21/2017 10:39 PM
Iron	130	1.8	20		ug/L	1	7/21/2017 10:39 PM
Magnesium	17000	4.4	100		ug/L	1	7/21/2017 10:39 PM
Sodium	1400000	1300	25000		ug/L	50	7/25/2017 10:01 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **MB-62950** SampType: **MBLK** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **7/20/2017** RunNo: **116522**
Client ID: **PBW** Batch ID: **62950** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **7/21/2017** SeqNo: **2700644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	32.879	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS-62950** SampType: **LCS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **7/20/2017** RunNo: **116522**
Client ID: **LCSW** Batch ID: **62950** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **7/21/2017** SeqNo: **2700645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9156.056	500	10000	0	91.6	85	115				
Iron	110.210	20	100.0	0	110	85	115				
Magnesium	9249.310	100	10000	0	92.5	85	115				

Sample ID **N025046-002B-MS** SampType: **MS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **7/20/2017** RunNo: **116522**
Client ID: **ZZZZZZ** Batch ID: **62950** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **7/21/2017** SeqNo: **2700653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	97175.354	500	10000	86310	109	75	125				
Iron	272.658	20	100.0	198.5	74.1	75	125				S
Magnesium	26898.394	100	10000	17460	94.3	75	125				

Sample ID **N025046-002B-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **7/20/2017** RunNo: **116522**
Client ID: **ZZZZZZ** Batch ID: **62950** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **7/21/2017** SeqNo: **2700654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	98789.005	500	10000	86310	125	75	125	97180	1.65	20	
Iron	277.076	20	100.0	198.5	78.5	75	125	272.7	1.61	20	
Magnesium	27243.656	100	10000	17460	97.8	75	125	26900	1.28	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **MB-62950**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116597**
Client ID: **PBW**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/25/2017**	SeqNo: **2705090**

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

Sample ID **LCS2-62950**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116597**
Client ID: **LCSW**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/25/2017**	SeqNo: **2705091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20508.336	500	20000	0	103	85	115				

Sample ID **N025072-001B-MS2**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116597**
Client ID: **ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/25/2017**	SeqNo: **2705099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	717373.953	12000	20000	712500	24.5	75	125				S

Sample ID **N025072-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/20/2017**	RunNo: **116597**
Client ID: **ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/25/2017**	SeqNo: **2705100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	693200.034	12000	20000	712500	-96.3	75	125	717400	3.43	20	S

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-001

Client Sample ID: PE-01-0717
Collection Date: 7/18/2017 11:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170723D**	QC Batch: **62969**			PrepDate	**7/21/2017**		Analyst: **CEI**
Manganese	240	0.28	2.5		µg/L	5	7/24/2017 08:48 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025072
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025072-002

Client Sample ID: TW-03D-0717
Collection Date: 7/18/2017 10:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170723D**	QC Batch: **62969**			PrepDate	**7/21/2017**		Analyst: **CEI**
Manganese	9.8	0.056	0.50		µg/L	1	7/24/2017 05:34 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-62969**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **PBW**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702458**

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

Sample ID **LCS-62969**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **LCSW**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702459**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.919	0.50	100.0	0	94.9	85	115				

Sample ID **N024981-002B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **ZZZZZZ**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	134.345	0.50	100.0	43.51	90.8	75	125				

Sample ID **N024981-002B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/21/2017**	RunNo: **116551**
Client ID: **ZZZZZZ**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	135.305	0.50	100.0	43.51	91.8	75	125	134.3	0.712	20	

Qualifiers:

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

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; dana.greene@citizen.com	Address:	Geotracker	RWQCB ✓	1 Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2 Headspace
Submitted By: [illegible]		PO #	Others ✓	LEVEL III	3 Container Intact
Title: Samplers	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4 Seal Present
Signature: Date: 7/18/17	Sampled By: Sergio Medina		Global ID:	Regulatory	5 IR number
I Hereby authorize ASSET Labs to perform the tests indicated below	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State:	6 Method of Cooling: Ice
Project Name: PG&E Topock - PMP	Signature: Date: 7/18/17				Sample Temp: 3-5°C
Project Number: RC000753.801B					Courier:
					Tracking No:

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

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (SM3500-CrB) (NH4)2, SO4, NH4, OH 250 mL poly	Dissolved metals (SW6020A) FF; HNO3, 500 mL poly Cr	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, Mn, Fe, Na 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 1 L poly	Total metals (SW6010B), HNO3 Fe 500 mL poly	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025072 - 01	PE-01-0717	7/18/17	1105		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	- 02	TW-03D-0717	7/18/17	1055			X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Relinquished by (Signature and Printed Name)	Date/Time
[signature]	7/18/17	[signature]	7/18/17 1610
[signature]	7/18/17 1906	[signature]	7/18/17 1906
[signature]		[signature]	

Turn Around Time (TAT)

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

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

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

Terms:
1 All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report
2 Regular TAT is 5-7 business days surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=60% 3 Workdays=35 % 4 Workdays=20%
3 Custom EDD formats will be an additional 3% of the total project price
4 Add 10% surcharge for Level III Data Packages 15% for Level IV Data Packages Surcharge applied on total project price
5 Trip Blanks and Equipment Blanks are billable sample
6 Asset Laboratories is not responsible for samples collected using incorrect methodology
7 Terms are net 30 days
8 All reports are submitted in electronic format Please inform ASSET Laboratories if hard copy of report is needed
9 For subcontract analysis TAT and Surcharges will vary

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On: 7/18/2017 Workorder: N025072

Rep sample Temp (Deg C): 3.5 IR Gun ID: 2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

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

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

Sample Receipt Checklist

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

Comments:

Checklist Completed By MBC MBC 7/24/2017 Reviewed By: 8/02/2017

ASSET Laboratories

WORK ORDER Summary

28-Jul-17

WorkOrder: N025072

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 7/18/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025072-001A	PE-01-0717	7/18/2017 11:05:00 AM	8/1/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025072-001B			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025072-001C			8/1/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/1/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/1/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/1/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/1/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N025072-001D			8/1/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025072-002A	TW-03D-0717	7/18/2017 10:55:00 AM	8/1/2017		SM 3500-Cr B	HEXAVALENT CHROMIUM	☐	☐	☐	WW
N025072-002B			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/1/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/1/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025072-002C			8/1/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/1/2017		SM4500-H+B	pH	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jul-17

WorkOrder: N025072

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 7/18/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025072-002C	TW-03D-0717	7/18/2017 10:55:00 AM	8/1/2017	Groundwater	SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/1/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/1/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/1/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N025072-002D			8/1/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025072-003A	FOLDER	8/1/2017	8/1/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/1/2017		Folder	Folder	☐	☐	☐	LAB
			8/1/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N025072**

NAME	TEST METHOD
Quennie Manimtim	SM 3500-CR B
Claire Ignacio	EPA 6010B, EPA 6020
Ryan Balilu	SM 4500-NO3F
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	SM 2320B, SM 2540C, SM 4500-H+B, EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116440 **Analyst:** LSR

ASSET #: N025072 **Date Analyzed:** 7/19/2017

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 7/28/2017

2nd Level Reviewer: 8/4/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 7/6/17 1745

Analyst: KEB

Standard	Std ID	Reading	Comments
9.76 us/cm	CINV-170303A	9.91 us/cm @28.5°C	% Rec: (90-110%)
1411	170329B	1401 @28.3°C	
10003	170329A	9930 @28.4°C	
99582	170329C	99300 @28.5°C	

	Sample ID	Matrix	Reading	Comments
1	H024864-001B	H_2O	7590 us/cm @28.2°C	
2	002B		7000 @28.2°C	
3	003A		62500 @28.5°C	
4	003ADUP		62300 @28.5°C	
5				
6				
7	1413 us/cm	CINV-170125F	1407 us/cm @28.5°C	
8	10,000	170125E	10100 @28.6°C	
9	99899	170403A	101 ~~700~~ 500 @28.5°C	
10			7/6/15	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 7/19/17 1120

Analyst: LSR

Standard	Std ID	Reading	Comments
9.76 us/cm	CINV-170303A	9.98 @25.8°C	% Rec: (90-110%)
1411	170329B	1408 @25.5°C	
10003	170329A	9910 @25.7°C	
99582	170329C	98800 @25.8°C	

	Sample ID	Matrix	Reading	Comments
1	N025072-001C	H_2O	3990 @25.0°C	
2	2C		7450 @24.7°C	
3	2CDUP		7420 @24.6°C	
4				
5				
6				
7				Julia Ramit 7/28/2017
8				
9	1413 us/cm	CINV-170125F	1436 us/cm @24.9°C	
10	10000	170125E	10030 @25.1°C	
Dup	99899	170403A	97500 @25.2°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116439 **Instrument ID:** pH meter

ASSET #: N05072 **Analyst:** LSR

Date Analyzed: 19-Jul

Method: EPA 150.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 7/25/2017

2nd Level Reviewer: 8/4/2017 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 7/18/17

Analyst: MG

Standard	Std ID	pH	Comments
Buffer 7	CMW-170125C	7.02 @ 25.5°C	slope - 98.7%
Buffer 4	170125B	4.03 @ 25°C	
Buffer 10	1703314	9.99 @ 25°C	

	Sample ID	Matrix	pH	Comments
1	N025020-1A	Soil	8.63 / 1.35	
2	N025020-3B	"	9.21 / 1.46	
3	N02479K-4D	"	7.33 / 2.05	
4				
5				
6				
7				
8				
9				
10				
Dup				
	Buffer (7) 4, 10 (Circle one)	CMW-170125D	6.95 @ 25.6°C	Accept: 10% water, 20% soil
				Accept: +/-0.1 pH units from expected value

Date: 7/19/17 1110

Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CMW-170125C	7.00 @ 25.1°C	SLOPE: 98.4%
Buffer 4	170125B	4.02 @ 23.2°C	
Buffer 10	1703314	10.05 @ 24.0°C	

	Sample ID	Matrix	pH	Comments
1	N025020-001C	H2O	7.64 @ 22.9°C	
2	2C	"	7.42 @ 23.0°C	
3	2C DUP	"	7.42 @ 22.8°C	
4				
5				
6				
7				
8				
9				
10				
Dup				
	Buffer (7) 4, 10 (Circle one)	CMW-170125D	7.02 @ 24.9°C	Accept: 10% water, 20% soil
				Accept: +/-0.1 pH units from expected value

Julia Ramit 7/25/2017

Logbook #11

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 62932 **Analyst:** LSR

ASSET #: N025072 **Date Analyzed:** 7/19/2017

Method: EPA 160.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Julia Ramit Date: 7/28/2017

2nd Level Reviewer 8/3/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

Where:

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

For **N025072-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(60.7020–60.5964)*1000000}{40}$$

= 2640 mg/L

Reporting result in two significant figures,

TDS = 2600 mg/L

Divija Ramit 7/28/2017

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/19/2017 1:09:42 P**
Prep End Date: **7/20/2017 10:30:00**
Reviewed/ Date: 8/3/2017
Initials/ Date: Lilia Ramit 7/28/2017
Prep Batch **62932** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-62932	Water		100	☐	0	0	100	1.000		
MB-62932	Water		100	☐	0	0	100	1.000		
N024981-003C	Water		20	☐	0	0	100	5.000		
N025047-005C	Groundwater		100	☐	0	0	100	1.000		
N025047-006C	Groundwater		100	☐	0	0	100	1.000		
N025072-001C	Groundwater		40	☐	0	0	100	2.500		
N025072-002C	Groundwater		20	☐	0	0	100	5.000		
~~4.09~~										
N025072-002C-DU	Groundwater		20	☐	0	0	100	5.000		
~~4.09~~										
N025073-001C	Groundwater		75	☐	0	0	100	1.333		
N025073-002B	Groundwater		20	☐	0	0	100	5.000		
N025073-004C	Groundwater		40	☐	0	0	100	2.500		
N025073-006B	Groundwater		30	☐	0	0	100	3.333		

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

Number	Reagent Name
9130	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170718A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/19/2017 1:09:42 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 7/28/2017

Prep Batch **62932** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-62932	Water	IWS 17107 KA	100	☐	0	0	100	1.000		
MB-62932	Water		100	☐	0	0	100	1.000		
N024981-003C	Water	6830	100 | 20	☐	0	0	100	1.000		
N025047-005C	Groundwater	440	100	☐	0	0	100	1.000		
N025047-006C	Groundwater	437	100	☐	0	0	100	1.000		
N025072-001C	Groundwater	3990	100 | 40	☐	0	0	100	1.000		
N025072-002C 4.09	Groundwater	7450	100 | 20	☐	0	0	100	1.000		
N025072-002C-DU 4.09	Groundwater	"	100 | 20	☐	0	0	100	1.000		
N025073-001C	Groundwater	1789	100 | 75	☐	0	0	100	1.000		
N025073-002B	Groundwater	5050	100 | 20	☐	0	0	100	1.000		
N025073-004C	Groundwater	3330	100 | 40	☐	0	0	100	1.000		
N025073-006B	Groundwater	4750	100 | 20	☐	0	0	100	1.000		

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

9130

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
7/19/17 1309 4	MB G2932	100	62.3682 62.3679	62.3685 62.3684	
4	LCS G2932	100	63.8631 63.8630	63.9401 63.9405	
1B	N025481-002C	20	60.7426 60.7430	60.9083 60.9005	
3	N025047-005C	100	54.5449 54.5457	54.5798 54.5794	
1	6C	100	53.5420 53.5423	53.5818 53.5815	
1H	N025072-001C	40	60.5963 60.5964	60.7024 60.7020	
1J	2C	20	61.5505 61.5505	61.6457 61.6447	
1A	2C DUP	20	61.0573 61.0576	61.1494 61.1491	
1N	N025073-001C	75	60.8215 60.8216	60.9392 60.9388	
1M	2B	20	59.1439 59.1436	59.2443 59.2439	

ASSET Laboratories

Logbook#6

Julia Ramit 7/28/2017

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
7/19/17 1B	N025073-002C	40	59.5782 59.5786	59.6931 59.6928	
12	6B	30	61.1824 61.18829	61.3058 61.3055	
	Julia Ramit	7/28/2017			

ASSET LABORATORIES

CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921

NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV009

ing Clients with Passion and Professionalism"

TOTAL DISSOLVED SOLIDS, TDS

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

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

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
7/20/2017									
MB-62932	100	62.3679	62.3686	7	1	7			MBLK
LCS-62932	100	63.863	63.9605	975	1	975			LCS
N024981-003C	20	60.743	60.9005	1575	5	7875	6830	1.153	SAMP
N025047-005C	100	54.5451	54.5794	343	1	343	440	0.780	SAMP
N025047-006C	100	53.5423	53.5815	392	1	392	437	0.897	SAMP
N025072-001C	40	60.5964	60.702	1056	2.5	2640	3990	0.662	SAMP
N025072-002C	20	61.5505	61.6447	942	5	4710	7450	0.632	SAMP
N025072-002CDUP	20	61.0516	61.1491	975	5	4875	7450	0.654	DUP
N025073-001C	75	60.8216	60.9388	1172	1.33333333	1562.66667	1789	0.873	SAMP
N025073-002B	20	59.1436	59.2439	1003	5	5015	5050	0.993	SAMP
N025073-004C	40	59.5786	59.6928	1142	2.5	2855	3330	0.857	SAMP
N025073-006B	30	61.1829	61.3055	1226	3.33333333	4086.66667	4750	0.860	SAMP

Julia Ramit 7/28/2017

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R116512
ASSET #: N025072

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 7/19/2017

Method:

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer rba Date: 7/26/2017

2nd Level Reviewer 8/3/2017 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N025072-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0000 * 1$$

$$Cr^{+6}, \mu g/L = 0.00$$

Since PQL is 0.2 µg/L,

Cr^{+6}, µg/L = ND

rba 7/26/2017

ANALYSIS RUN LOG

INJECTION LOG: 170710A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:36 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:46 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/10/17 11:56 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:15 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:26 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:36 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:45 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:55 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 1:04 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	07/10/17 1:20 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/10/17 1:32 PM	Not Reported
12	ICB	ICB	1	Hexavalent Chromium	07/10/17 1:41 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/10/17 1:50 PM	Reported
14	MB-R116217	MBLK	1	Hexavalent Chromium	07/10/17 2:03 PM	Reported
15	LCS-R116217	LCS	1	Hexavalent Chromium	07/10/17 2:15 PM	Reported
16	N024867-001A	SAMP	1	Hexavalent Chromium	07/10/17 2:24 PM	Reported
17	N024885-001A	SAMP	1	Hexavalent Chromium	07/10/17 2:34 PM	Reported
18	N024867-001ADUP	DUP	1	Hexavalent Chromium	07/10/17 2:49 PM	Reported
19	N024867-001AMS	MS	1	Hexavalent Chromium	07/10/17 3:00 PM	Reported
20	N024867-001AMSD	MSD	1	Hexavalent Chromium	07/10/17 3:10 PM	Reported
21	CCV-1	CCV	1	Hexavalent Chromium	07/10/17 3:20 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	07/10/17 3:31 PM	Reported

jrba 7/12/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170710A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**10/Jul/17 16:02:04**
No. of Injections:	**25**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/10/2017 11:36	Finished	
2	BLANK	2	1000	Unknown		07/10/2017 11:46	Finished	
3	iBLANK	3	1000	Unknown		07/10/2017 11:56	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	07/10/2017 12:15	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	07/10/2017 12:26	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	07/10/2017 12:36	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	07/10/2017 12:45	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	07/10/2017 12:55	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	07/10/2017 13:04	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		07/10/2017 13:20	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,1	12	1000	Unknown		07/10/2017 13:32	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		07/10/2017 13:41	Interrupted	ICB R170626B
13	PQL@0.2ppb,CCV2,1	13	1000	Unknown		07/10/2017 13:50	Finished	ICB R170626B
14	MB-H2O,MBLK,1	14	1000	Unknown		07/10/2017 14:03	Finished	MB R170626B
15	LCS-H2O,LCS,1	15	1000	Unknown		07/10/2017 14:15	Finished	LCS, IWST-170622D
16	N024867-001A,SAMP	16	1000	Unknown		07/10/2017 14:24	Finished	SAMP, 10mL
17	N024885-001A,SAMP	17	1000	Unknown		07/10/2017 14:34	Finished	SAMP, 10mL
18	N024867-001ADUP,D	19	1000	Unknown		07/10/2017 14:49	Finished	DUP,10mL
19	N024867-001AMS,MS	20	1000	Unknown		07/10/2017 15:00	Finished	MS (1ppb), IWST-170622D,10
20	N024867-001AMSD,M	21	1000	Unknown		07/10/2017 15:10	Finished	MSD (1ppb), IWST-170622D,10
21	CCV-1,CCV,1,	22	1000	Unknown		07/10/2017 15:20	Finished	CCV @10ppb, IWST-170622C
22	CCB-1,CCB,1,	23	1000	Unknown		07/10/2017 15:31	Finished	CCB R170626B
23	SHUTDOWN	24	1000	Unknown		07/10/2017 15:41	Finished	
24	Eluent: R170710A	25	1000	Unknown		n.a.	Finished	Eluent
25	PCR: R170710B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 7/12/2017

INJECTION LOG: 170719A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:36 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:46 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/10/17 11:56 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:15 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:26 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:36 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:45 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:55 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 1:04 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	07/19/17 9:16 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	07/19/17 9:27 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	07/19/17 9:37 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/19/17 9:48 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	07/19/17 9:58 AM	Reported
15	MB-R116512	MBLK	1	Hexavalent Chromium	07/19/17 10:07 AM	Reported
16	LCS-R116512	LCS	1	Hexavalent Chromium	07/19/17 10:17 AM	Reported
17	N025072-001A	SAMP	1	Hexavalent Chromium	07/19/17 10:40 AM	Reported
18	N025073-001A	SAMP	1	Hexavalent Chromium	07/19/17 10:51 AM	Reported
19	N025073-003A	SAMP	1	Hexavalent Chromium	07/19/17 11:01 AM	Reported
20	N025073-004A	SAMP	1	Hexavalent Chromium	07/19/17 11:10 AM	Reported
21	N025073-005A	SAMP	5	Hexavalent Chromium	07/19/17 11:20 AM	Reported
22	N025073-007A	SAMP	1	Hexavalent Chromium	07/19/17 11:29 AM	Reported
23	N025072-001AMS	MS	1	Hexavalent Chromium	07/19/17 11:39 AM	Reported
24	N025072-001AMSD	MSD	1	Hexavalent Chromium	07/19/17 11:48 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	07/19/17 11:58 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	07/19/17 12:07 PM	Reported
27	N025075-001A	SAMP	1	Hexavalent Chromium	07/19/17 12:20 PM	Reported
28	N025075-002A	SAMP	1	Hexavalent Chromium	07/19/17 12:32 PM	Reported
29	N025075-003A	SAMP	1	Hexavalent Chromium	07/19/17 12:41 PM	Reported
30	N025075-004A	SAMP	1	Hexavalent Chromium	07/19/17 12:51 PM	Reported
31	N025075-005A	SAMP	1	Hexavalent Chromium	07/19/17 1:00 PM	Reported
32	N025075-006A	SAMP	1	Hexavalent Chromium	07/19/17 1:10 PM	Reported
33	N025075-007A	SAMP	1	Hexavalent Chromium	07/19/17 1:19 PM	Reported
34	N025075-008A	SAMP	1	Hexavalent Chromium	07/19/17 1:29 PM	Reported
35	N025075-009A	SAMP	1	Hexavalent Chromium	07/19/17 1:38 PM	Reported
36	N025075-010A	SAMP	1	Hexavalent Chromium	07/19/17 1:48 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	07/19/17 1:57 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	07/19/17 2:06 PM	Reported
39	N025075-011A	SAMP	1	Hexavalent Chromium	07/19/17 2:16 PM	Reported
40	N025075-012A	SAMP	1	Hexavalent Chromium	07/19/17 2:25 PM	Reported
41	N025073-001AMS	MS	1	Hexavalent Chromium	07/19/17 2:35 PM	Reported
42	N025073-003ADUP	DUP	1	Hexavalent Chromium	07/19/17 2:45 PM	Reported

INJECTION LOG: 170719A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	LCS-R116513	LCS	1	Hexavalent Chromium	07/19/17 3:01 PM	Reported
44	MB-R116513	MBLK	1	Hexavalent Chromium	07/19/17 3:12 PM	Reported
45	N025070-001A	SAMP	1	Hexavalent Chromium	07/19/17 3:21 PM	Reported
46	N025086-001A	SAMP	1000	Hexavalent Chromium	07/19/17 3:35 PM	Reported
47	N025086-002A	SAMP	1000	Hexavalent Chromium	07/19/17 3:46 PM	Reported
48	N025086-003A	SAMP	1000	Hexavalent Chromium	07/19/17 3:56 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	07/19/17 4:05 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	07/19/17 4:15 PM	Reported
51	N025086-004A	SAMP	1000	Hexavalent Chromium	07/19/17 4:24 PM	Reported
52	N025086-005A	SAMP	1000	Hexavalent Chromium	07/19/17 4:33 PM	Reported
53	N025086-006A	SAMP	1000	Hexavalent Chromium	07/19/17 4:43 PM	Reported
54	N025086-002AMS	MS	1000	Hexavalent Chromium	07/19/17 4:52 PM	Reported
55	N025086-002AMSD	MSD	1000	Hexavalent Chromium	07/19/17 5:02 PM	Reported
56	N025086-006ADUP	DUP	1000	Hexavalent Chromium	07/19/17 5:11 PM	Reported
57	N025086-007A	SAMP	200	Hexavalent Chromium	07/19/17 5:21 PM	Reported
58	N025086-008A	SAMP	50	Hexavalent Chromium	07/19/17 5:30 PM	Reported
59	N025086-009A	SAMP	2000	Hexavalent Chromium	07/19/17 5:40 PM	Reported
60	N025086-009AMS	MS	2000	Hexavalent Chromium	07/19/17 5:49 PM	Reported
61	CCV-5	CCV	1	Hexavalent Chromium	07/19/17 5:59 PM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	07/19/17 6:08 PM	Reported
63	N025086-010A	SAMP	2000	Hexavalent Chromium	07/19/17 6:18 PM	Reported
64	N025086-011A	SAMP	2000	Hexavalent Chromium	07/19/17 6:27 PM	Reported
65	N025086-012A	SAMP	2000	Hexavalent Chromium	07/19/17 6:36 PM	Reported
66	N025086-013A	SAMP	2000	Hexavalent Chromium	07/19/17 6:46 PM	Reported
67	N025086-014A	SAMP	2000	Hexavalent Chromium	07/19/17 6:55 PM	Reported
68	N025086-015A	SAMP	2000	Hexavalent Chromium	07/19/17 7:05 PM	Reported
69	N025086-016A	SAMP	2000	Hexavalent Chromium	07/19/17 7:14 PM	Reported
70	N025086-017A	SAMP	2000	Hexavalent Chromium	07/19/17 7:24 PM	Reported
71	N024934-004A	SAMP	1	Hexavalent Chromium	07/19/17 7:33 PM	Not Reported
72	N024934-004AMS	MS	1	Hexavalent Chromium	07/19/17 7:43 PM	Not Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	07/19/17 7:52 PM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	07/19/17 8:02 PM	Reported
75	N024934-007A	SAMP	10	Hexavalent Chromium	07/19/17 8:11 PM	Not Reported
76	N024934-007AMS	MS	10	Hexavalent Chromium	07/19/17 8:21 PM	Not Reported
77	N024934-008A	SAMP	10	Hexavalent Chromium	07/19/17 8:30 PM	Not Reported
78	N024934-008AMS	MS	10	Hexavalent Chromium	07/19/17 8:39 PM	Not Reported
79	N024934-010A	SAMP	50	Hexavalent Chromium	07/19/17 8:49 PM	Not Reported
80	N024934-010AMS	MS	50	Hexavalent Chromium	07/19/17 8:58 PM	Not Reported
81	N024934-011A	SAMP	50	Hexavalent Chromium	07/19/17 9:08 PM	Not Reported
82	N024934-011AMS	MS	50	Hexavalent Chromium	07/19/17 9:17 PM	Not Reported
83	CCV-7	CCV	1	Hexavalent Chromium	07/19/17 9:27 PM	Reported
84	CCB-7	CCB	1	Hexavalent Chromium	07/19/17 9:36 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170719A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**19/Jul/17 22:07:04**
No. of Injections:	**87**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/10/2017 11:36	Finished	
2	BLANK	2	1000	Unknown		07/10/2017 11:46	Finished	
3	iBLANK	3	1000	Unknown		07/10/2017 11:56	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	07/10/2017 12:15	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	07/10/2017 12:26	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	07/10/2017 12:36	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	07/10/2017 12:45	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	07/10/2017 12:55	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	07/10/2017 13:04	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		07/19/2017 09:16	Finished	
11	BLANK	2	1000	Unknown		07/19/2017 09:27	Finished	
12	CCV-1,CCV,1,	4	1000	Unknown		07/19/2017 09:37	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	5	1000	Unknown		07/19/2017 09:48	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	6	1000	Unknown		07/19/2017 09:58	Finished	CCB R170713C
15	MB-H2O,MBLK,1	7	1000	Unknown		07/19/2017 10:07	Finished	MB R170713C
16	LCS-H2O,LCS,1	8	1000	Unknown		07/19/2017 10:17	Finished	LCS, IWST-170622D
17	N025072-001A,SAMP	10	1000	Unknown		07/19/2017 10:40	Finished	SAMP, 10mL
18	N025073-001A,SAMP	11	1000	Unknown		07/19/2017 10:51	Finished	SAMP, 10mL
19	N025073-003A,SAMP	12	1000	Unknown		07/19/2017 11:01	Finished	SAMP, 10mL
20	N025073-004A,SAMP	13	1000	Unknown		07/19/2017 11:10	Finished	SAMP, 10mL
21	N025073-005A,SAMP	14	1000	Unknown		07/19/2017 11:20	Finished	SAMP,2>10mL
22	N025073-007A,SAMP	15	1000	Unknown		07/19/2017 11:29	Finished	SAMP, 10mL
23	N025072-001AMS,MS	16	1000	Unknown		07/19/2017 11:39	Finished	MS (1ppb), IWST-170622D,10
24	N025072-001AMSD,M	17	1000	Unknown		07/19/2017 11:48	Finished	MSD (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	18	1000	Unknown		07/19/2017 11:58	Finished	CCV @5ppb, IWST-170622C
26	CCB-2,CCB,1,	19	1000	Unknown		07/19/2017 12:07	Finished	CCB R170713C
27	N025075-001A,SAMP	21	1000	Unknown		07/19/2017 12:20	Finished	SAMP, 10mL
28	N025075-002A,SAMP	22	1000	Unknown		07/19/2017 12:32	Finished	SAMP, 10mL
29	N025075-003A,SAMP	23	1000	Unknown		07/19/2017 12:41	Finished	SAMP, 10mL
30	N025075-004A,SAMP	24	1000	Unknown		07/19/2017 12:51	Finished	SAMP, 10mL
31	N025075-005A,SAMP	25	1000	Unknown		07/19/2017 13:00	Finished	SAMP, 10mL
32	N025075-006A,SAMP	26	1000	Unknown		07/19/2017 13:10	Finished	SAMP, 10mL
33	N025075-007A,SAMP	27	1000	Unknown		07/19/2017 13:19	Finished	SAMP, 10mL
34	N025075-008A,SAMP	28	1000	Unknown		07/19/2017 13:29	Finished	MS (5ppb), IWST-170622D,10
35	N025075-009A,SAMP	29	1000	Unknown		07/19/2017 13:38	Finished	MSD (5ppb), IWST-170622D,10
36	N025075-010A,SAMP	30	1000	Unknown		07/19/2017 13:48	Finished	MS (5ppb), IWST-170622D,10
37	CCV-3,CCV,1,	31	1000	Unknown		07/19/2017 13:57	Finished	CCV @10ppb, IWST-170622D
38	CCB-3,CCB,1,	32	1000	Unknown		07/19/2017 14:06	Finished	CCB R170713C
39	N025075-011A,SAMP	33	1000	Unknown		07/19/2017 14:16	Finished	SAMP, 10mL
40	N025075-012A,SAMP	34	1000	Unknown		07/19/2017 14:25	Finished	SAMP, 10mL
41	N025073-001AMS,MS	35	1000	Unknown		07/19/2017 14:35	Finished	MS (5ppb), IWST-170622D,10
42	N025073-003ADUP,D	36	1000	Unknown		07/19/2017 14:45	Finished	DUP, 10mL
43	LCS-2,LCS,1	1	1000	Unknown		07/19/2017 15:01	Finished	LCS, IWST-170622D
44	MB-2,MBLK,1	2	1000	Unknown		07/19/2017 15:12	Finished	MB R170626B
45	N025070-001A,SAMP	3	1000	Unknown		07/19/2017 15:21	Finished	SAMP, 10mL
46	N025086-001A,SAMP	5	1000	Unknown		07/19/2017 15:35	Finished	SAMP, 0.01>10mL
47	N025086-002A,SAMP	6	1000	Unknown		07/19/2017 15:46	Finished	SAMP, 0.01>10mL
48	N025086-003A,SAMP	7	1000	Unknown		07/19/2017 15:56	Finished	SAMP, 0.01>10mL
49	CCV-4,CCV1,1,	8	1000	Unknown		07/19/2017 16:05	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	9	1000	Unknown		07/19/2017 16:15	Finished	CCB R170713C
51	N025086-004A,SAMP	10	1000	Unknown		07/19/2017 16:24	Finished	SAMP, 0.01>10mL
52	N025086-005A,SAMP	11	1000	Unknown		07/19/2017 16:33	Finished	SAMP, 0.01>10mL
53	N025086-006A,SAMP	12	1000	Unknown		07/19/2017 16:43	Finished	SAMP, 0.01>10mL
54	N025086-002AMS,MS	13	1000	Unknown		07/19/2017 16:52	Finished	MS (5ppb), IWST-170622D,0.0
55	N025086-002AMSD,M	14	1000	Unknown		07/19/2017 17:02	Finished	MSD (5ppb), IWST-170622D,0
56	N025086-006ADUP,D	15	1000	Unknown		07/19/2017 17:11	Finished	DUP, 0.01>10mL
57	N025086-007A,SAMP	16	1000	Unknown		07/19/2017 17:21	Finished	SAMP, 0.05>10mL
58	N025086-008A,SAMP	17	1000	Unknown		07/19/2017 17:30	Finished	SAMP, 0.2>10mL
59	N025086-009A,SAMP	18	1000	Unknown		07/19/2017 17:40	Finished	SAMP, 0.005>10mL
60	N025086-009AMS,MS	19	1000	Unknown		07/19/2017 17:49	Finished	MS (5ppb), IWST-170622D,0.0

61	CCV-5,CCV,1,	20	1000	Unknown		07/19/2017 17:59	Finished	CCV @5ppb, IWST-170622C
62	CCB-5,CCB,1,	21	1000	Unknown		07/19/2017 18:08	Finished	CCB R170626B
63	N025086-010A,SAMP	22	1000	Unknown		07/19/2017 18:18	Finished	SAMP, 0.005>10mL
64	N025086-011A,SAMP	23	1000	Unknown		07/19/2017 18:27	Finished	SAMP, 0.005>10mL
65	N025086-012A,SAMP	24	1000	Unknown		07/19/2017 18:36	Finished	SAMP, 0.005>10mL
66	N025086-013A,SAMP	25	1000	Unknown		07/19/2017 18:46	Finished	SAMP, 0.005>10mL
67	N025086-014A,SAMP	26	1000	Unknown		07/19/2017 18:55	Finished	SAMP, 0.005>10mL
68	N025086-015A,SAMP	27	1000	Unknown		07/19/2017 19:05	Finished	SAMP, 0.005>10mL
69	N025086-016A,SAMP	28	1000	Unknown		07/19/2017 19:14	Finished	SAMP, 0.005>10mL
70	N025086-0017A,SAM	29	1000	Unknown		07/19/2017 19:24	Finished	SAMP, 0.005>10mL
71	N024934-004A,SAMP	30	1000	Unknown		07/19/2017 19:33	Finished	SAMP, 10mL
72	N024934-004AMS,MS	31	1000	Unknown		07/19/2017 19:43	Finished	MS (5ppb), IWST-170622D,10
73	CCV-6,CCV1,1,	32	1000	Unknown		07/19/2017 19:52	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	33	1000	Unknown		07/19/2017 20:02	Finished	CCB R170626B
75	N024934-007A,SAMP	34	1000	Unknown		07/19/2017 20:11	Finished	SAMP, 1>10mL
76	N024934-007AMS,MS	35	1000	Unknown		07/19/2017 20:21	Finished	MS (5ppb), IWST-170622D,1>1
77	N024934-008A,SAMP	36	1000	Unknown		07/19/2017 20:30	Finished	SAMP, 1>10mL
78	N024934-008AMS,MS	37	1000	Unknown		07/19/2017 20:39	Finished	MS (5ppb), IWST-170622D,1>1
79	N024934-010A,SAMP	38	1000	Unknown		07/19/2017 20:49	Finished	SAMP, 0.2>10mL
80	N024934-010AMS,MS	39	1000	Unknown		07/19/2017 20:58	Finished	MS (5ppb), IWST-170622D,0.2
81	N024934-011A,SAMP	40	1000	Unknown		07/19/2017 21:08	Finished	SAMP, 0.2>10mL
82	N024934-011AMS,MS	41	1000	Unknown		07/19/2017 21:17	Finished	MS (5ppb), IWST-170622D,0.2
83	CCV-7,CCV,1,	42	1000	Unknown		07/19/2017 21:27	Finished	CCV @5ppb, IWST-170622C
84	CCB-7,CCB,1,	43	1000	Unknown		07/19/2017 21:36	Finished	CCB R170626B
85	SHUTDOWN	44	1000	Unknown		07/19/2017 21:46	Finished	
86	Eluent: R170718F	45	1000	Unknown		n.a.	Finished	Eluent
87	PCR: R170719A	46	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 7/19/17
Time Prepared: 1545H
Prepared By: MBA

Reagent ID:
Sulfuric Acid: 8993
Diphenylcarbazide: CLN. 172620A
NH4OH + NH4SO4 eluent: R170717A
NH4OH + NH4SO4 buffer: R170626B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025056-1A	7.38		~250 mL	~250 mL	+5 mL R170626B	
2)	2A	7.42					
3)	3A	7.20					
4)	4A	7.26					
5)	5A	7.51					
6)	6A	7.67					
7)	7A	7.34					
8)	8A	7.11					
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 7/19/17
Time Prepared: 0945A
Prepared By: MBA

Slope: 98.47
pH4: 4.02 @ 25.2°C
7: 7.00 @ 25.1°C
10: 10.05 @ 25.0°C

Reagent ID:
Sulfuric Acid: 8993
Diphenylcarbazide: CLN. 172620A
NH4OH + NH4SO4 eluent: R170718F / R170722A
NH4OH + NH4SO4 buffer: R170706C / R170626B

6N NaOH: R170718C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025072-1A	9.21	9.41	~250 mL	~250 mL	+3 drops 6N NaOH	R170713C
2)	N025074-1A	9.23	9.52			+4 "	R170713C
3)	2A	9.31	-			"	
4)	3A	9.17	9.46			+11 "	
5)	4A	9.25	9.48			+9 "	
6)	5A	~~9.18~~ 8.78	9.46			+7 "	R170626A
7)	7A	9.35	-				
8)	6A	8.95	9.47			+5 "	R170713C
9)	N025073-1A	8.87	9.34			+7 "	R170713C
10)	3A	8.82	9.62			+10 "	
11)	4A	6.87	9.33			15 mL R170713C	
12)	5A	8.89	9.47			+7 "	
13)	7A	9.45	-				R170626B
14)	N025075-1A	8.91	9.44			+6 "	R170713C
15)	2A	9.13	9.43			+5 "	
	3A	8.94	9.44			+7 "	

Logbook No. 12

mba 7/26/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 7/10/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0508	0.2406	1.2520	2.5222	3.7910	5.1224	0.9999

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST160817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ICV**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/10/2017**	SeqNo: **2700100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.942	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/10/2017**	SeqNo: **2700102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.187	0.20	0.2000	0	93.4	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **CCV**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.189	0.20	5.000	0	104	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.205	0.20	0.2000	0	102	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.132	0.20	5.000	0	103	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **CCV**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.317	0.20	10.00	0	103	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ZZZZZZ**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.337	0.20	10.00	0	103	95	105				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **ICB**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/10/2017**	SeqNo: **2700101**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **CCB**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700105**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **CCB**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700117**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **CCB**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700129**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116512**
Client ID: **CCB**	Batch ID: **R116512**	TestNo: **EPA 218.6**		Analysis Date: **7/19/2017**	SeqNo: **2700135**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/19/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.548	
CCV-2	4.556	
CCV-3	4.565	
CCV-4	4.556	
CCV-5	4.565	
CCV-6	4.556	
CCV-7	4.556	
Average	4.557	
Actual RT Window	4.477 - 4.637	
Applied RT Window	4.357 - 4.757	
MB-R116512	N.A.	N.A.
LCS-R116512	4.548	PASS
N025072-001A	N.A.	N.A.
N025073-001A	4.548	PASS
N025073-003A	4.506	PASS
N025073-004A	N.A.	N.A.
N025073-005A	4.556	PASS
N025073-007A	4.565	PASS
N025072-001AMS	4.506	PASS
N025072-001AMSD	4.498	PASS
N025075-001A	4.548	PASS
N025075-002A	N.A.	N.A.
N025075-003A	N.A.	N.A.
N025075-004A	N.A.	N.A.
N025075-005A	4.556	PASS
N025075-006A	4.573	PASS
N025075-007A	N.A.	N.A.
N025075-008A	N.A.	N.A.
N025075-009A	N.A.	N.A.
N025075-010A	N.A.	N.A.
N025075-011A	4.556	PASS
N025075-012A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/19/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.548	
CCV-2	4.556	
CCV-3	4.565	
CCV-4	4.556	
CCV-5	4.565	
CCV-6	4.556	
CCV-7	4.556	
Average	4.557	
Actual RT Window	4.477 - 4.637	
Applied RT Window	4.357 - 4.757	
N025073-001AMS	4.540	PASS
N025073-003ADUP	4.506	PASS
LCS-R116513	4.565	PASS
MB-R116513	N.A.	N.A.
N025070-001A	4.540	PASS
N025086-001A	4.556	PASS
N025086-002A	4.556	PASS
N025086-003A	4.556	PASS
N025086-004A	4.548	PASS
N025086-005A	4.531	PASS
N025086-006A	4.531	PASS
N025086-002AMS	4.556	PASS
N025086-002AMSD	4.556	PASS
N025086-006ADUP	4.556	PASS
N025086-007A	4.556	PASS
N025086-008A	4.556	PASS
N025086-009A	4.556	PASS
N025086-009AMS	4.565	PASS
N025086-010A	4.565	PASS
N025086-011A	4.556	PASS
N025086-012A	4.556	PASS
N025086-013A	4.556	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 7/19/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.548	
CCV-2	4.556	
CCV-3	4.565	
CCV-4	4.556	
CCV-5	4.565	
CCV-6	4.556	
CCV-7	4.556	
Average	4.557	
Actual RT Window	4.477 - 4.637	
Applied RT Window	4.357 - 4.757	
N025086-014A	4.556	PASS
N025086-015A	4.556	PASS
N025086-016A	4.556	PASS
N025086-017A	4.556	PASS
N024934-004A	4.523	PASS
N024934-004AMS	4.523	PASS
N024934-007A	4.556	PASS
N024934-007AMS	4.556	PASS
N024934-008A	4.556	PASS
N024934-008AMS	4.556	PASS
N024934-010A	4.556	PASS
N024934-010AMS	4.556	PASS
N024934-011A	4.556	PASS
N024934-011AMS	4.556	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 170710A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:36 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:46 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/10/17 11:56 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:15 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:26 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:36 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:45 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:55 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 1:04 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	07/10/17 1:20 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/10/17 1:32 PM	Not Reported
12	ICB	ICB	1	Hexavalent Chromium	07/10/17 1:41 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/10/17 1:50 PM	Reported
14	MB-R116217	MBLK	1	Hexavalent Chromium	07/10/17 2:03 PM	Reported
15	LCS-R116217	LCS	1	Hexavalent Chromium	07/10/17 2:15 PM	Reported
16	N024867-001A	SAMP	1	Hexavalent Chromium	07/10/17 2:24 PM	Reported
17	N024885-001A	SAMP	1	Hexavalent Chromium	07/10/17 2:34 PM	Reported
18	N024867-001ADUP	DUP	1	Hexavalent Chromium	07/10/17 2:49 PM	Reported
19	N024867-001AMS	MS	1	Hexavalent Chromium	07/10/17 3:00 PM	Reported
20	N024867-001AMSD	MSD	1	Hexavalent Chromium	07/10/17 3:10 PM	Reported
21	CCV-1	CCV	1	Hexavalent Chromium	07/10/17 3:20 PM	Reported
22	CCB-1	CCB	1	Hexavalent Chromium	07/10/17 3:31 PM	Reported

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7/19/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170710A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**10/Jul/17 16:02:04**
No. of Injections:	**25**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/10/2017 11:36	Finished	
2	BLANK	2	1000	Unknown		07/10/2017 11:46	Finished	
3	iBLANK	3	1000	Unknown		07/10/2017 11:56	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	07/10/2017 12:15	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	07/10/2017 12:26	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	07/10/2017 12:36	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	07/10/2017 12:45	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	07/10/2017 12:55	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	07/10/2017 13:04	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		07/10/2017 13:20	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		07/10/2017 13:32	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		07/10/2017 13:41	Interrupted	ICB R170626B
13	PQL@0.2ppb,CCV2,	13	1000	Unknown		07/10/2017 13:50	Finished	ICB R170626B
14	MB-H2O,MBLK,1	14	1000	Unknown		07/10/2017 14:03	Finished	MB R170626B
15	LCS-H2O,LCS,1	15	1000	Unknown		07/10/2017 14:15	Finished	LCS, IWST-170622D
16	N024867-001A,SAMP	16	1000	Unknown		07/10/2017 14:24	Finished	SAMP, 10mL
17	N024885-001A,SAMP	17	1000	Unknown		07/10/2017 14:34	Finished	SAMP, 10mL
18	N024867-001ADUP,D	19	1000	Unknown		07/10/2017 14:49	Finished	DUP,10mL
19	N024867-001AMS,MS	20	1000	Unknown		07/10/2017 15:00	Finished	MS (1ppb), IWST-170622D,10
20	N024867-001AMSD,M	21	1000	Unknown		07/10/2017 15:10	Finished	MSD (1ppb), IWST-170622D,1(
21	CCV-1,CCV,1,	22	1000	Unknown		07/10/2017 15:20	Finished	CCV @10ppb, IWST-170622C
22	CCB-1,CCB,1,	23	1000	Unknown		07/10/2017 15:31	Finished	CCB R170626B
23	SHUTDOWN	24	1000	Unknown		07/10/2017 15:41	Finished	
24	Eluent: R170710A	25	1000	Unknown		n.a.	Finished	Eluent
25	PCR: R170710B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

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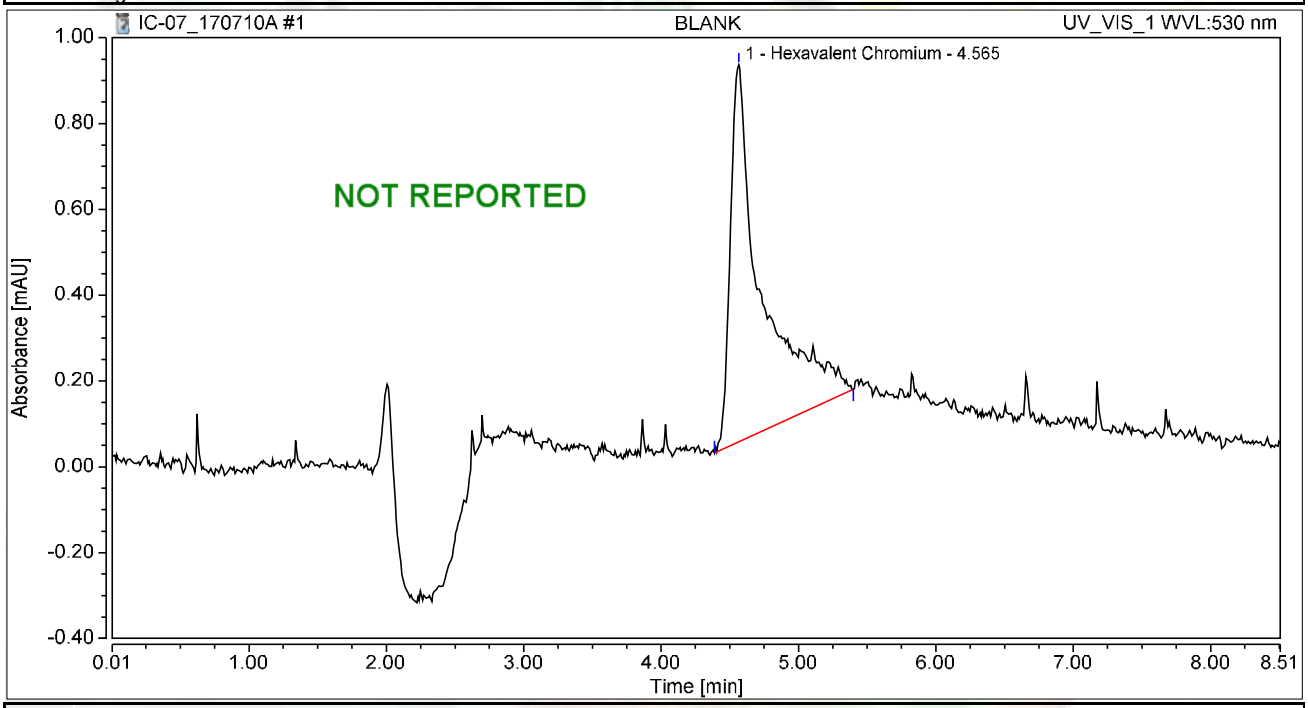
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 11:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

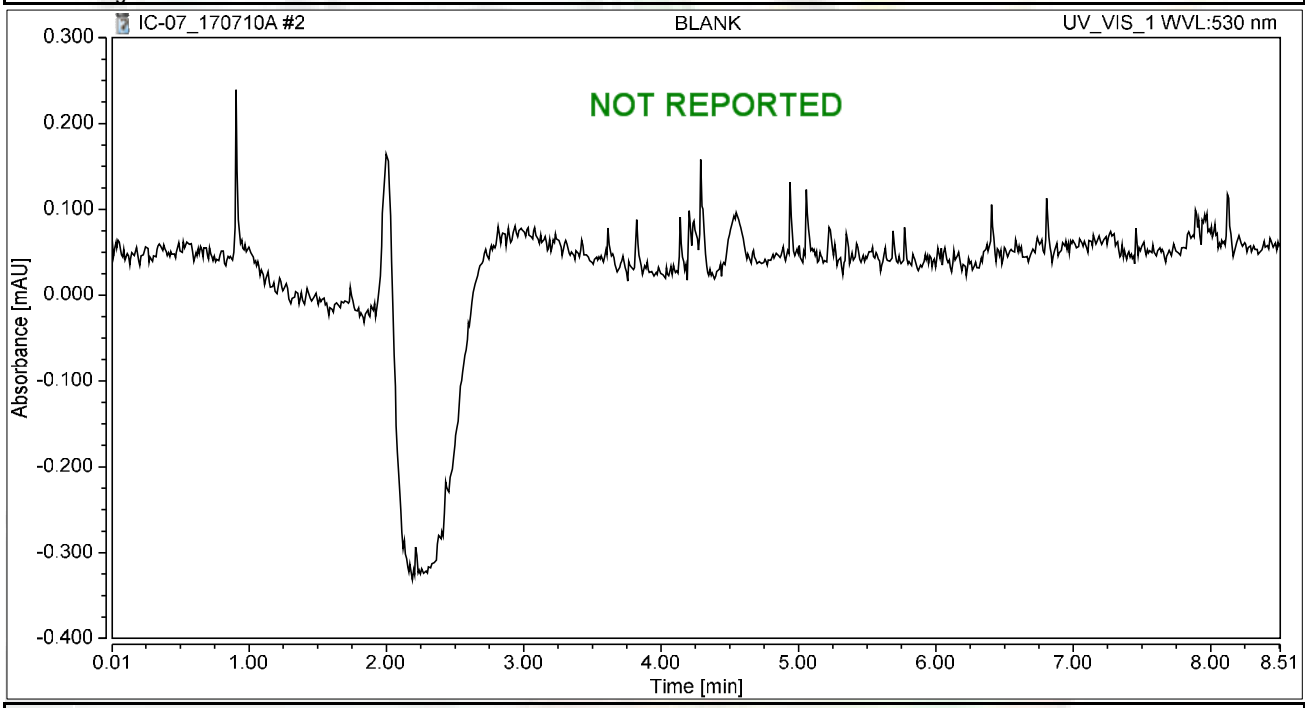
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.565	0.236	0.878	100.00	100.00	0.9274
Total:			**0.236**	**0.878**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

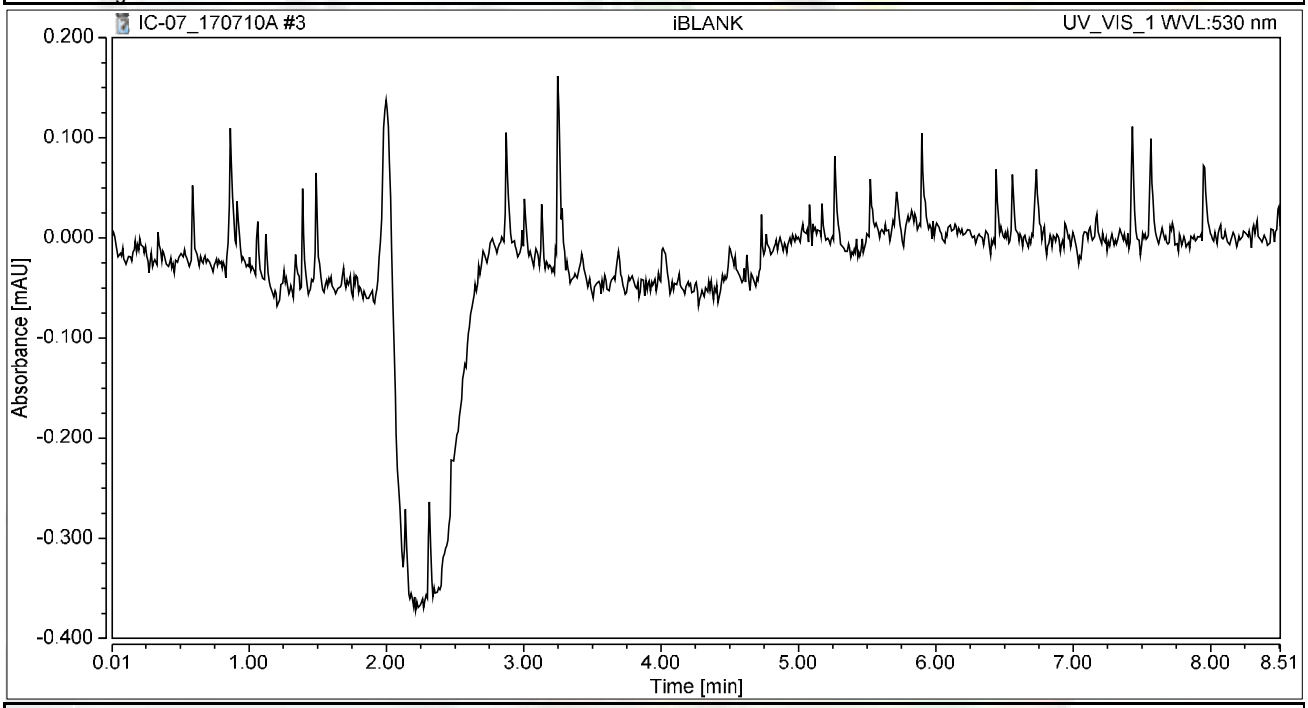
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 11:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

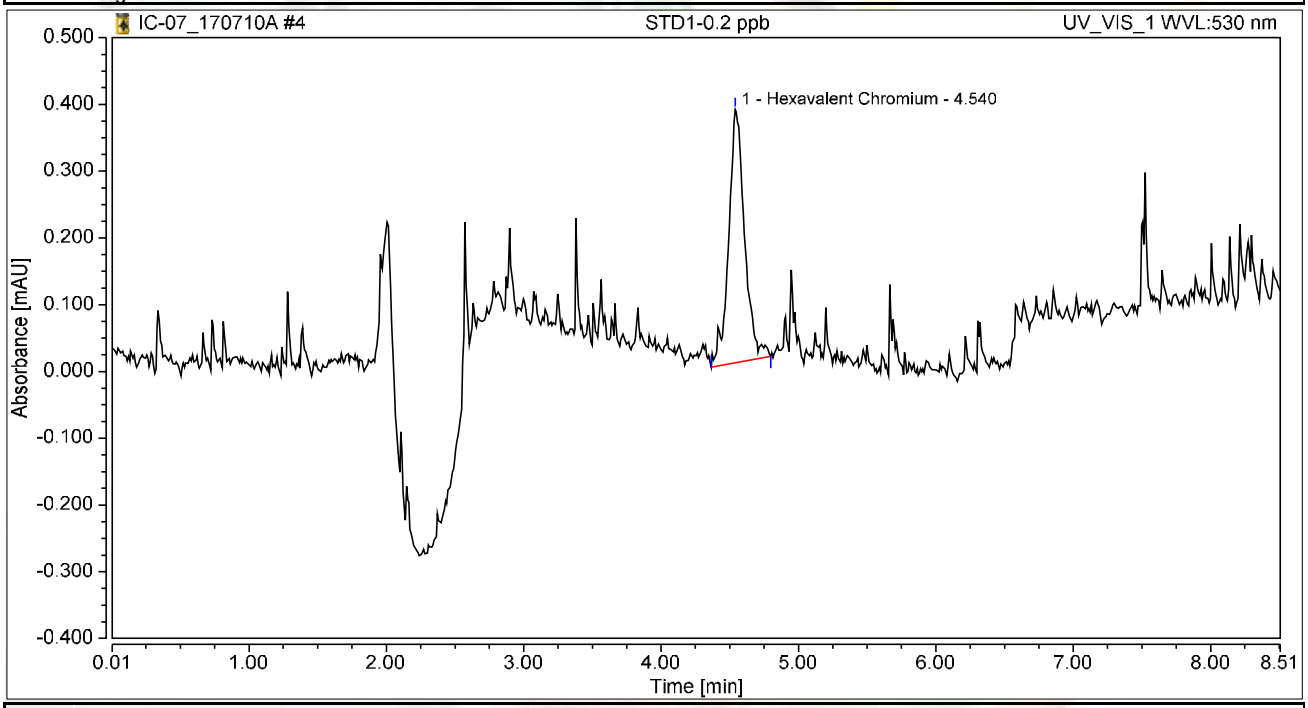
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 12:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

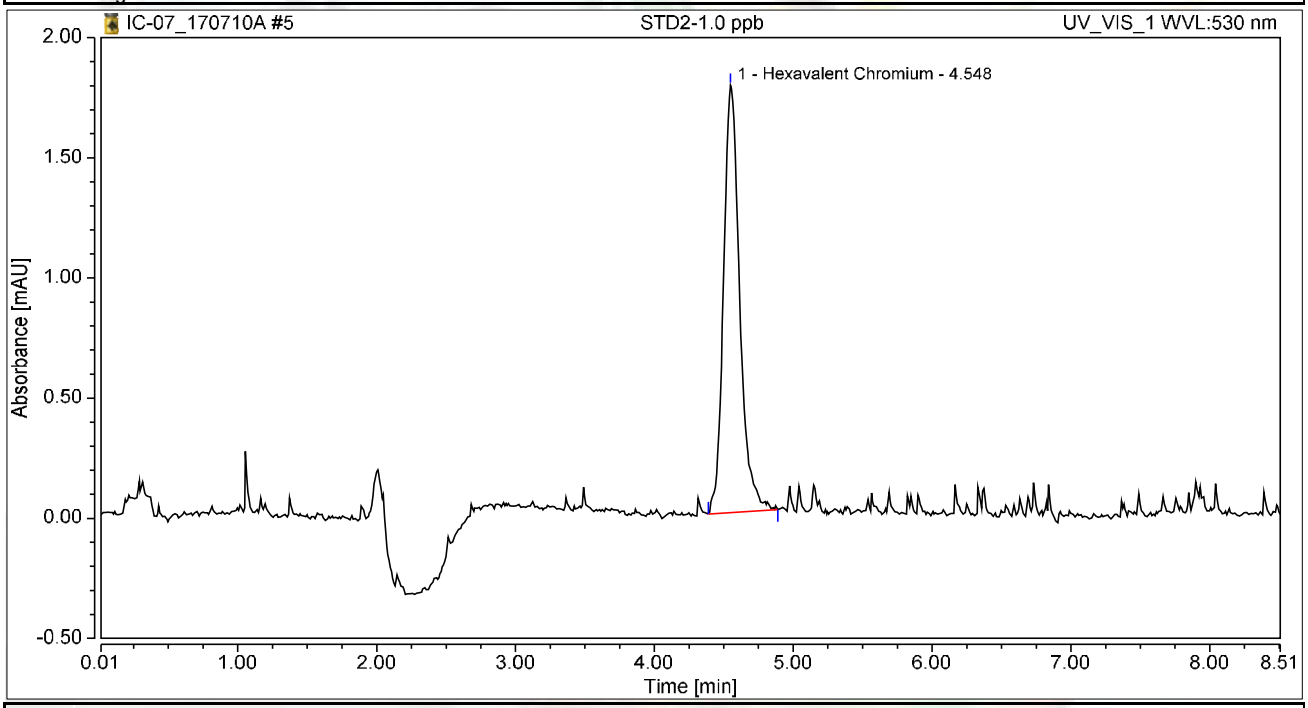
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.540	0.051	0.379	100.00	100.00	0.1998
Total:			**0.051**	**0.379**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 12:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

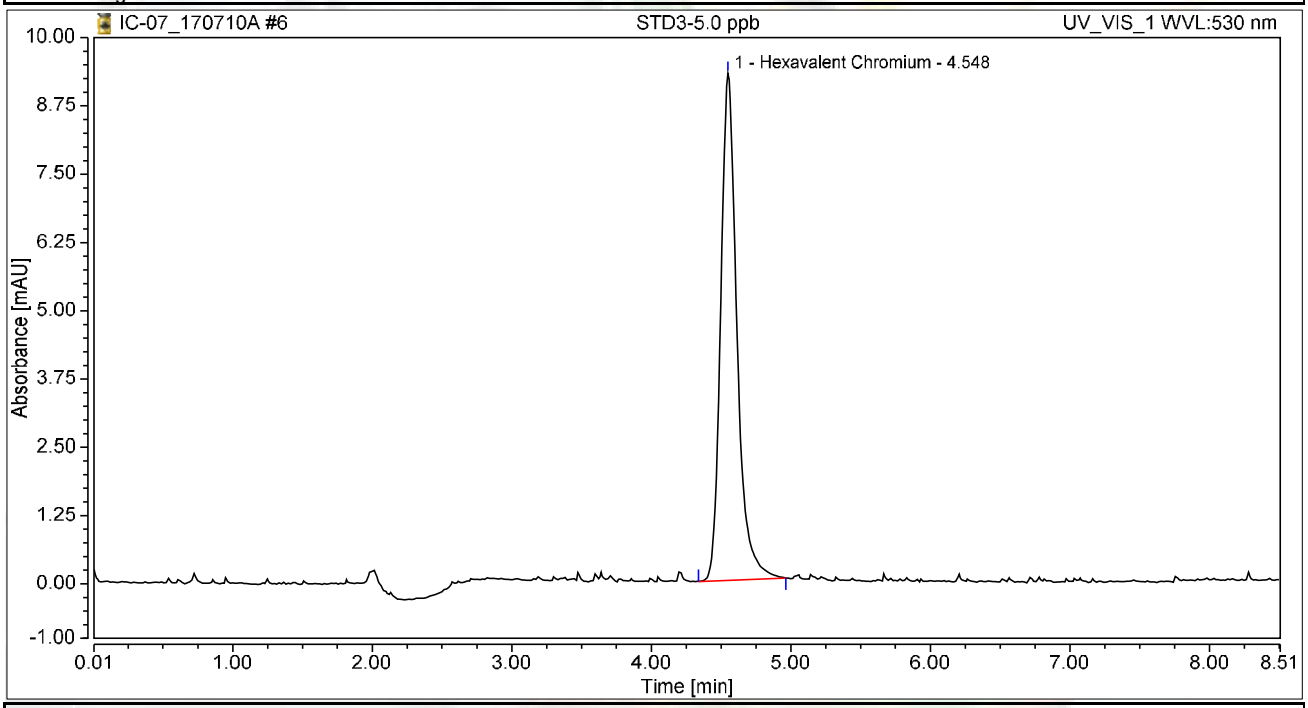
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	0.241	1.778	100.00	100.00	0.9459
Total:			**0.241**	**1.778**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

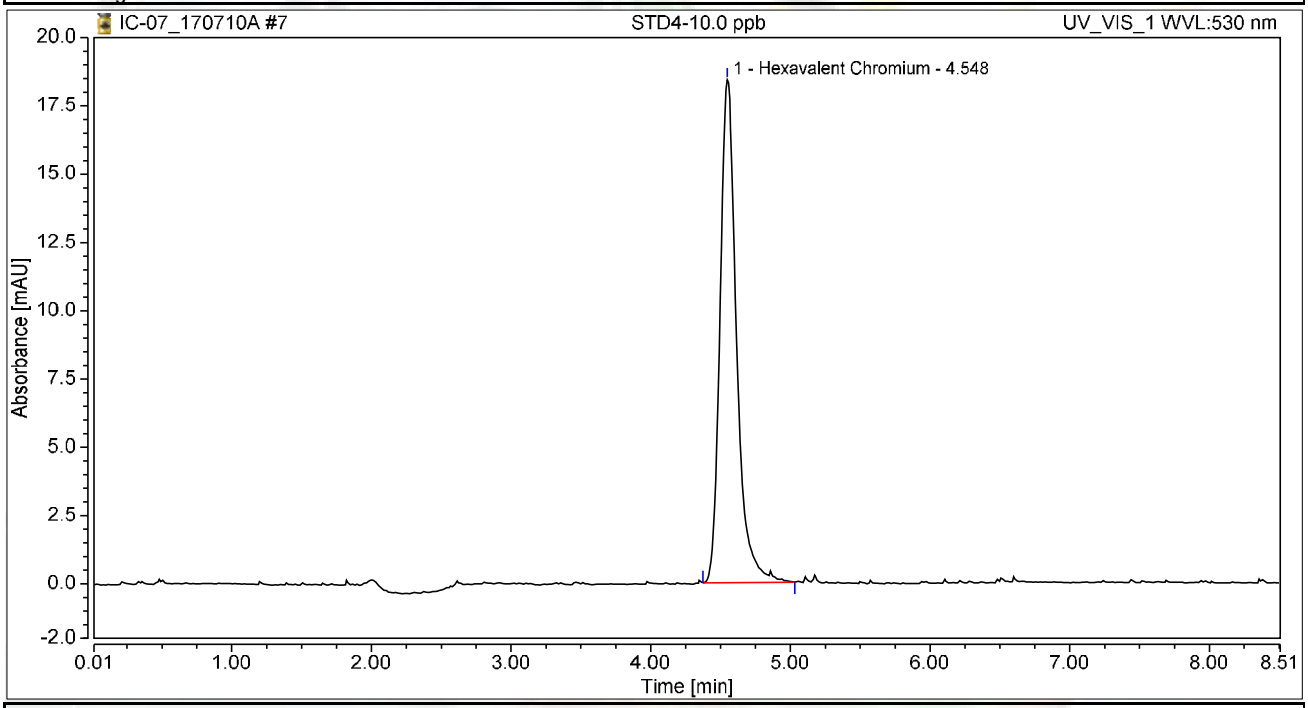
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.252	9.278	100.00	100.00	4.9218
Total:			**1.252**	**9.278**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 12:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

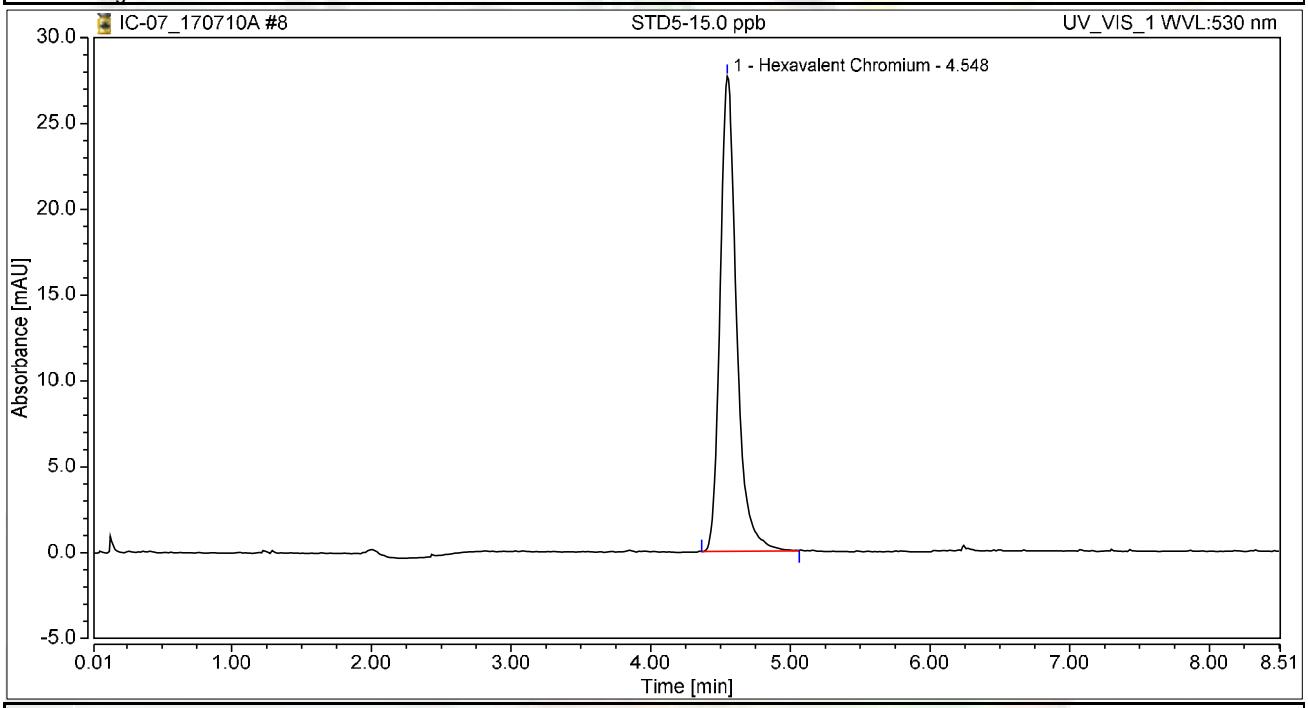
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	2.522	18.412	100.00	100.00	9.9154
Total:			**2.522**	**18.412**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 12:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

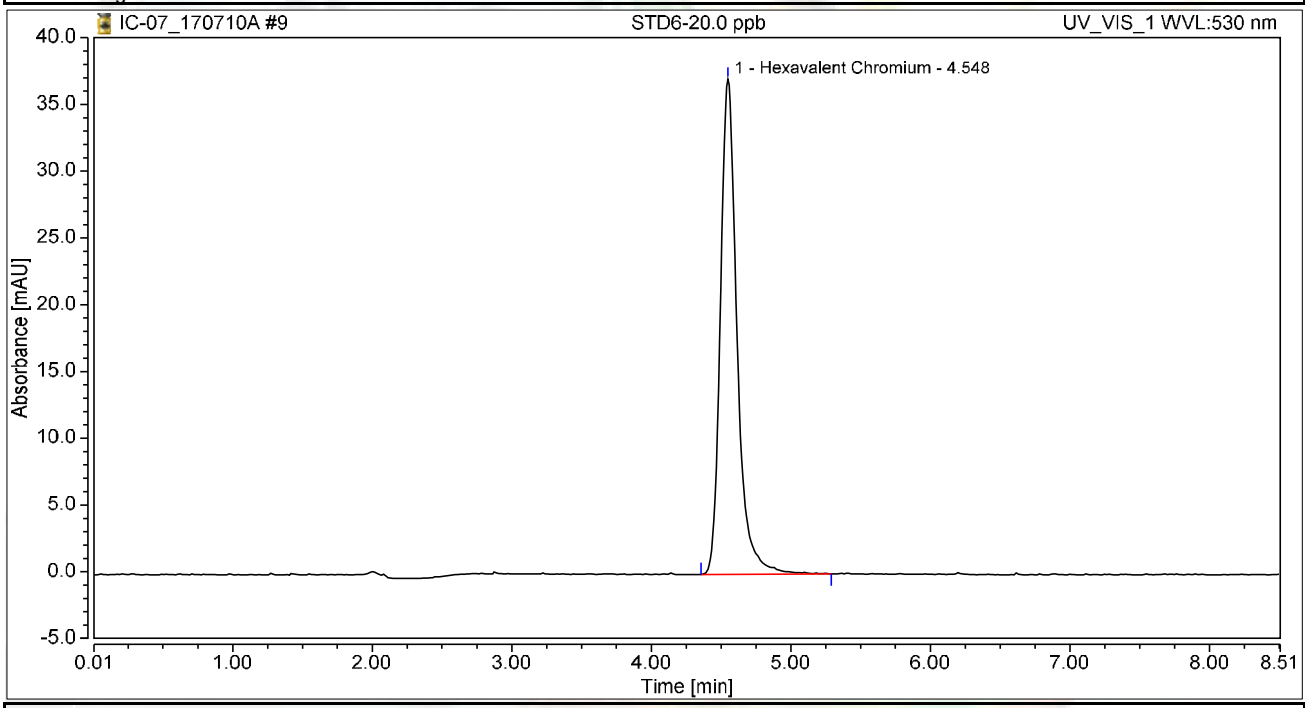
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	3.791	27.674	100.00	100.00	14.9032
Total:			**3.791**	**27.674**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:04**	*Sample Weight:*	**1.0000**

Chromatogram



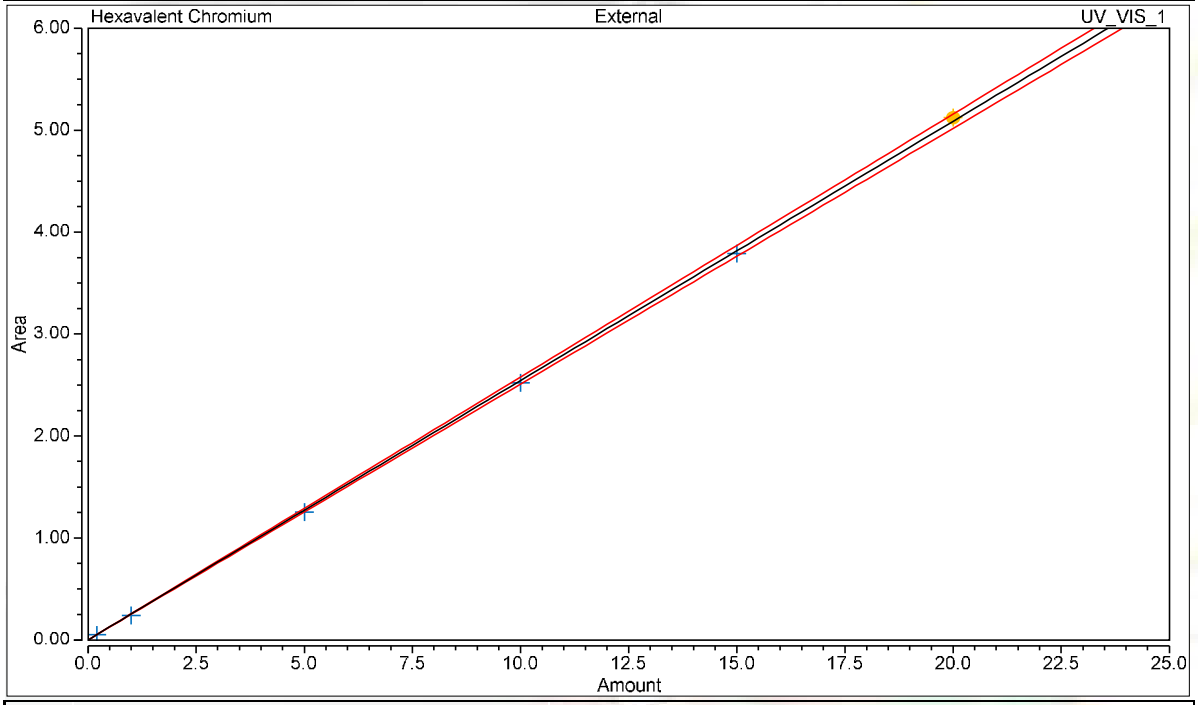
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	5.122	37.085	100.00	100.00	20.1372
Total:			**5.122**	**37.085**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2544
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99986

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

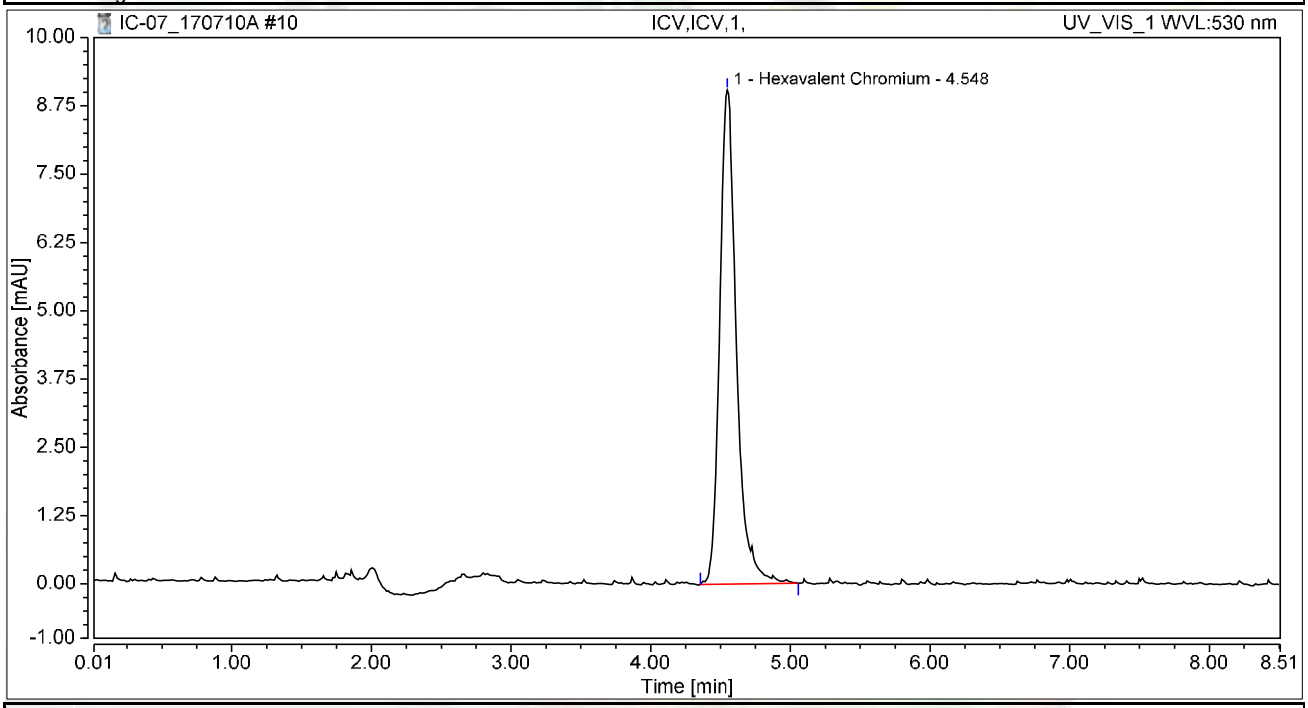
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0508	0.051	0.379
5	STD2-1.0 ppb	02	1.0000	0.2406	0.241	1.778
6	STD3-5.0 ppb	03	5.0000	1.2520	1.252	9.278
7	STD4-10.0 ppb	04	10.0000	2.5222	2.522	18.412
8	STD5-15.0 ppb	05	15.0000	3.7910	3.791	27.674
9	STD6-20.0 ppb	06	20.0000	5.1224	5.122	37.085

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

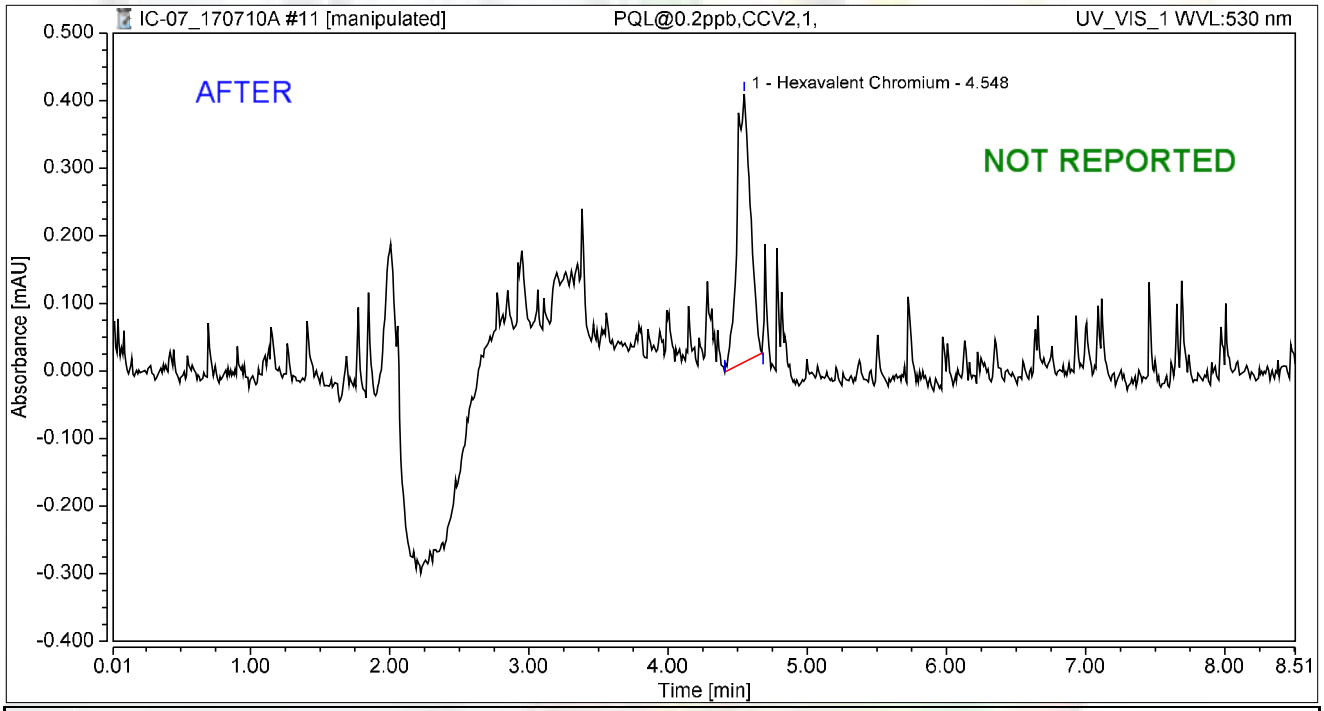
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.257	9.049	100.00	100.00	4.9424
Total:			**1.257**	**9.049**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	0.044	0.396	100.00	100.00	0.1731
Total:			**0.044**	**0.396**	**100.00**	**100.00**	

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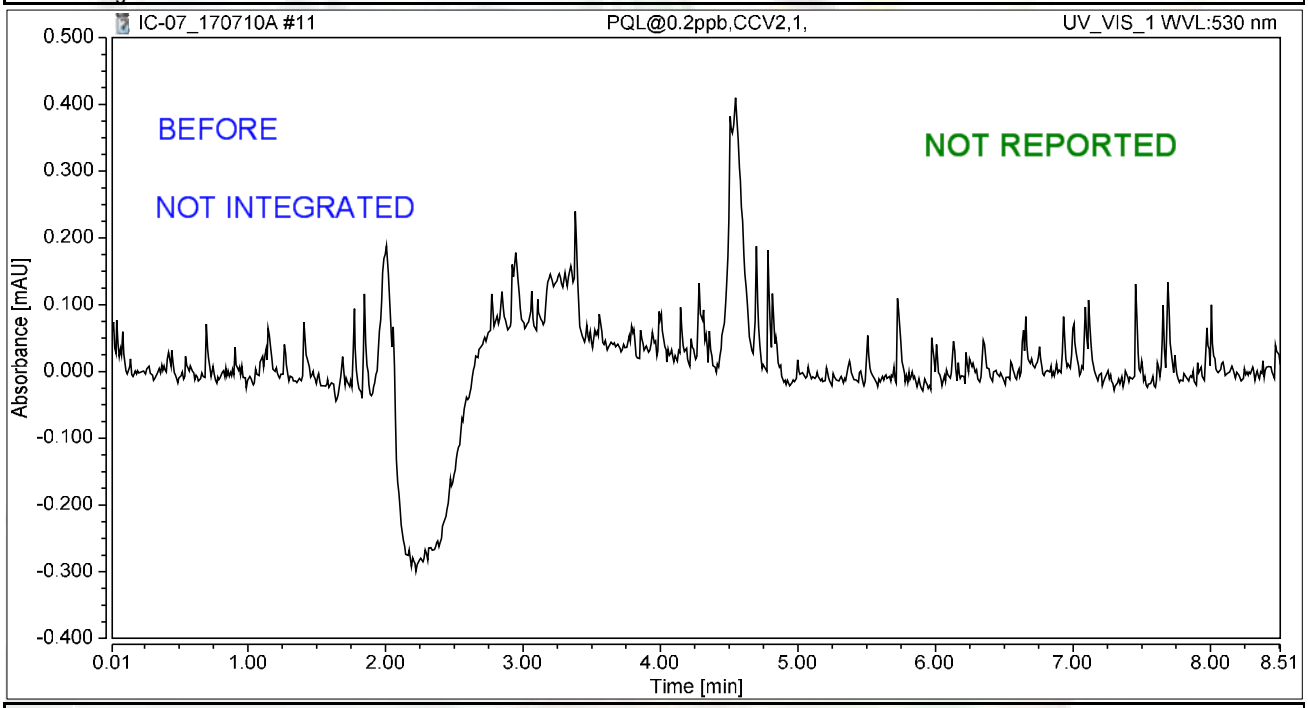
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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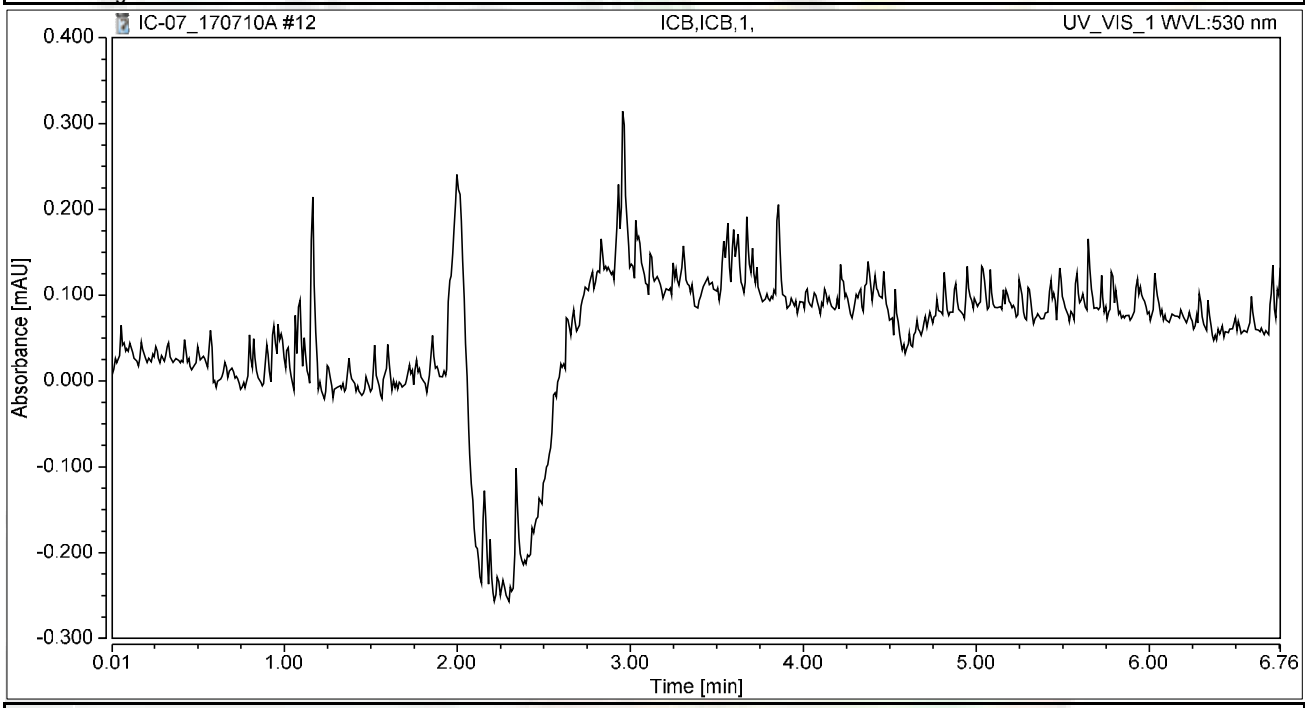
Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**6.75**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

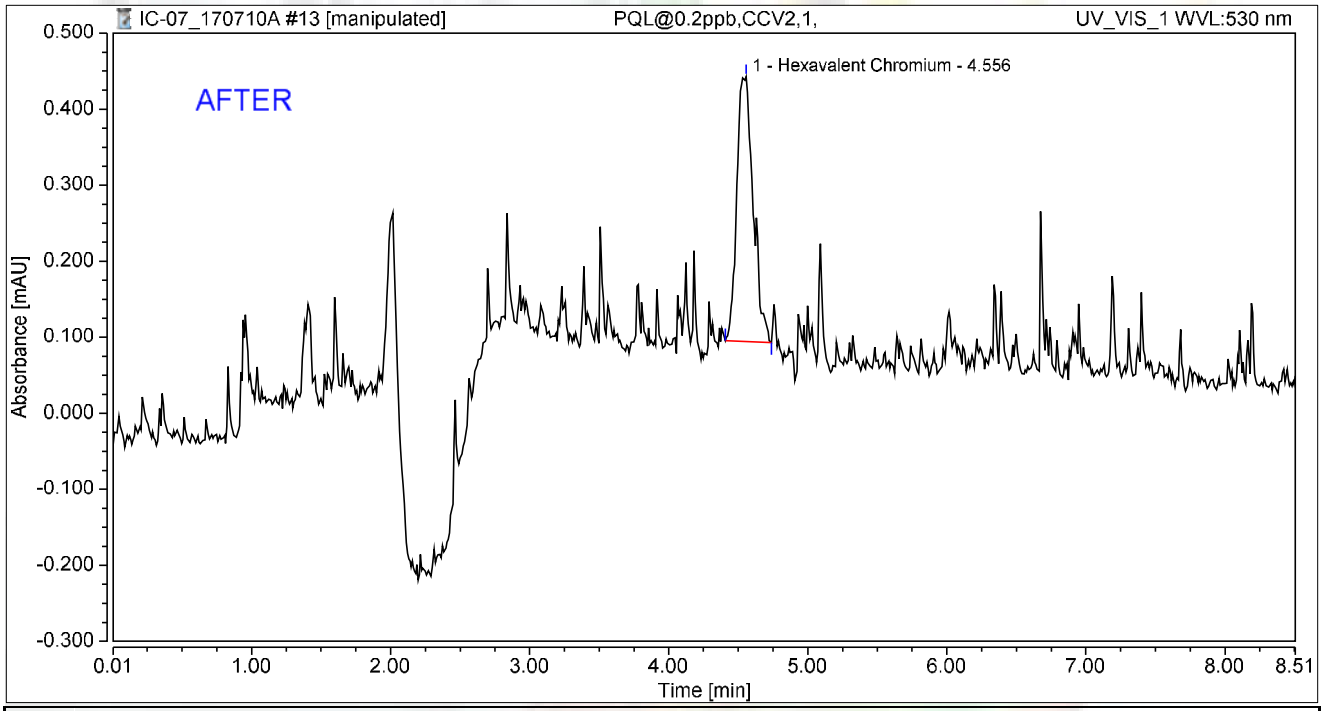
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	0.048	0.348	100.00	100.00	0.1868
Total:			**0.048**	**0.348**	**100.00**	**100.00**	

rba 7/12/2017

Reviewed by: 7/19/2017

My first report/Integration

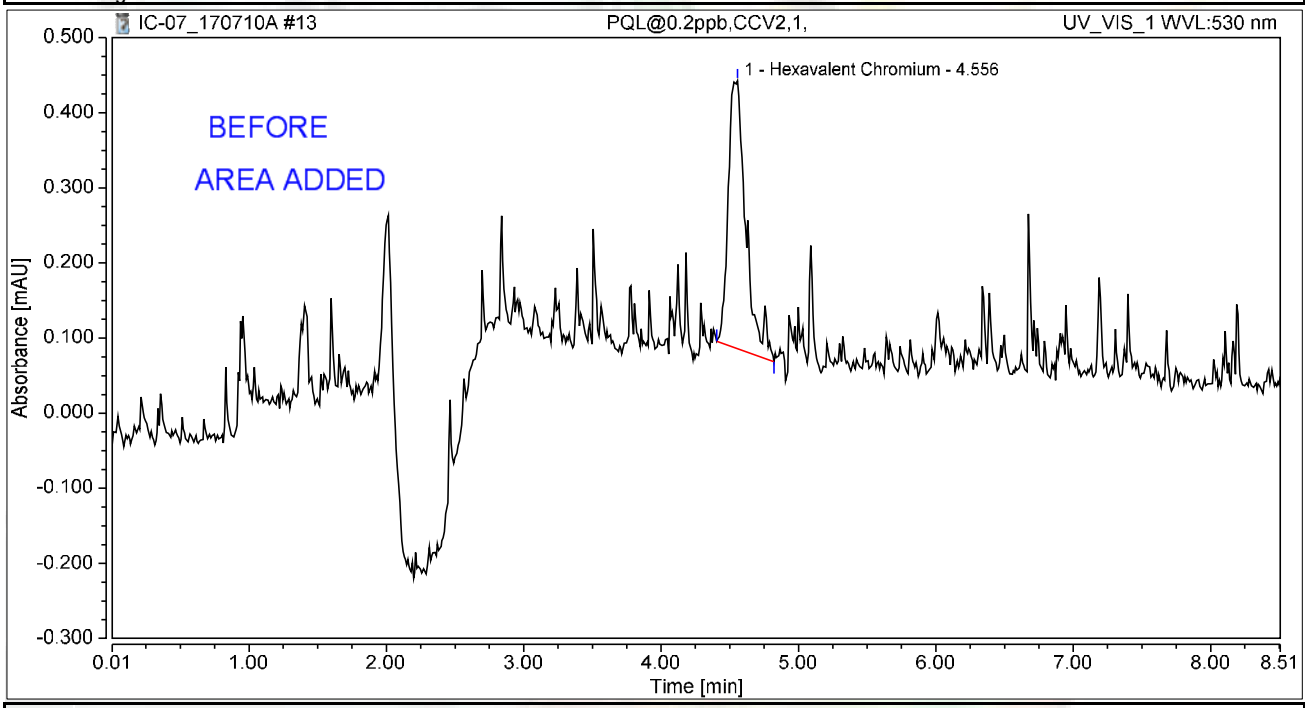
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/Jul/17 13:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	0.053	0.357	100.00	100.00	0.2087
Total:			**0.053**	**0.357**	**100.00**	**100.00**	

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RAW DATA

INJECTION LOG: 170719A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:36 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	07/10/17 11:46 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	07/10/17 11:56 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:15 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:26 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:36 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:45 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 12:55 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	07/10/17 1:04 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	07/19/17 9:16 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	07/19/17 9:27 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	07/19/17 9:37 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	07/19/17 9:48 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	07/19/17 9:58 AM	Reported
15	MB-R116512	MBLK	1	Hexavalent Chromium	07/19/17 10:07 AM	Reported
16	LCS-R116512	LCS	1	Hexavalent Chromium	07/19/17 10:17 AM	Reported
17	N025072-001A	SAMP	1	Hexavalent Chromium	07/19/17 10:40 AM	Reported
18	N025073-001A	SAMP	1	Hexavalent Chromium	07/19/17 10:51 AM	Reported
19	N025073-003A	SAMP	1	Hexavalent Chromium	07/19/17 11:01 AM	Reported
20	N025073-004A	SAMP	1	Hexavalent Chromium	07/19/17 11:10 AM	Reported
21	N025073-005A	SAMP	5	Hexavalent Chromium	07/19/17 11:20 AM	Reported
22	N025073-007A	SAMP	1	Hexavalent Chromium	07/19/17 11:29 AM	Reported
23	N025072-001AMS	MS	1	Hexavalent Chromium	07/19/17 11:39 AM	Reported
24	N025072-001AMSD	MSD	1	Hexavalent Chromium	07/19/17 11:48 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	07/19/17 11:58 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	07/19/17 12:07 PM	Reported
27	N025075-001A	SAMP	1	Hexavalent Chromium	07/19/17 12:20 PM	Reported
28	N025075-002A	SAMP	1	Hexavalent Chromium	07/19/17 12:32 PM	Reported
29	N025075-003A	SAMP	1	Hexavalent Chromium	07/19/17 12:41 PM	Reported
30	N025075-004A	SAMP	1	Hexavalent Chromium	07/19/17 12:51 PM	Reported
31	N025075-005A	SAMP	1	Hexavalent Chromium	07/19/17 1:00 PM	Reported
32	N025075-006A	SAMP	1	Hexavalent Chromium	07/19/17 1:10 PM	Reported
33	N025075-007A	SAMP	1	Hexavalent Chromium	07/19/17 1:19 PM	Reported
34	N025075-008A	SAMP	1	Hexavalent Chromium	07/19/17 1:29 PM	Reported
35	N025075-009A	SAMP	1	Hexavalent Chromium	07/19/17 1:38 PM	Reported
36	N025075-010A	SAMP	1	Hexavalent Chromium	07/19/17 1:48 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	07/19/17 1:57 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	07/19/17 2:06 PM	Reported
39	N025075-011A	SAMP	1	Hexavalent Chromium	07/19/17 2:16 PM	Reported
40	N025075-012A	SAMP	1	Hexavalent Chromium	07/19/17 2:25 PM	Reported
41	N025073-001AMS	MS	1	Hexavalent Chromium	07/19/17 2:35 PM	Reported
42	N025073-003ADUP	DUP	1	Hexavalent Chromium	07/19/17 2:45 PM	Reported

rba 7/26/2017

8/3/2017

IC-07 RBA 7/25/2017 4:44 PM

INJECTION LOG: 170719A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	LCS-R116513	LCS	1	Hexavalent Chromium	07/19/17 3:01 PM	Reported
44	MB-R116513	MBLK	1	Hexavalent Chromium	07/19/17 3:12 PM	Reported
45	N025070-001A	SAMP	1	Hexavalent Chromium	07/19/17 3:21 PM	Reported
46	N025086-001A	SAMP	1000	Hexavalent Chromium	07/19/17 3:35 PM	Reported
47	N025086-002A	SAMP	1000	Hexavalent Chromium	07/19/17 3:46 PM	Reported
48	N025086-003A	SAMP	1000	Hexavalent Chromium	07/19/17 3:56 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	07/19/17 4:05 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	07/19/17 4:15 PM	Reported
51	N025086-004A	SAMP	1000	Hexavalent Chromium	07/19/17 4:24 PM	Reported
52	N025086-005A	SAMP	1000	Hexavalent Chromium	07/19/17 4:33 PM	Reported
53	N025086-006A	SAMP	1000	Hexavalent Chromium	07/19/17 4:43 PM	Reported
54	N025086-002AMS	MS	1000	Hexavalent Chromium	07/19/17 4:52 PM	Reported
55	N025086-002AMSD	MSD	1000	Hexavalent Chromium	07/19/17 5:02 PM	Reported
56	N025086-006ADUP	DUP	1000	Hexavalent Chromium	07/19/17 5:11 PM	Reported
57	N025086-007A	SAMP	200	Hexavalent Chromium	07/19/17 5:21 PM	Reported
58	N025086-008A	SAMP	50	Hexavalent Chromium	07/19/17 5:30 PM	Reported
59	N025086-009A	SAMP	2000	Hexavalent Chromium	07/19/17 5:40 PM	Reported
60	N025086-009AMS	MS	2000	Hexavalent Chromium	07/19/17 5:49 PM	Reported
61	CCV-5	CCV	1	Hexavalent Chromium	07/19/17 5:59 PM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	07/19/17 6:08 PM	Reported
63	N025086-010A	SAMP	2000	Hexavalent Chromium	07/19/17 6:18 PM	Reported
64	N025086-011A	SAMP	2000	Hexavalent Chromium	07/19/17 6:27 PM	Reported
65	N025086-012A	SAMP	2000	Hexavalent Chromium	07/19/17 6:36 PM	Reported
66	N025086-013A	SAMP	2000	Hexavalent Chromium	07/19/17 6:46 PM	Reported
67	N025086-014A	SAMP	2000	Hexavalent Chromium	07/19/17 6:55 PM	Reported
68	N025086-015A	SAMP	2000	Hexavalent Chromium	07/19/17 7:05 PM	Reported
69	N025086-016A	SAMP	2000	Hexavalent Chromium	07/19/17 7:14 PM	Reported
70	N025086-017A	SAMP	2000	Hexavalent Chromium	07/19/17 7:24 PM	Reported
71	N024934-004A	SAMP	1	Hexavalent Chromium	07/19/17 7:33 PM	Not Reported
72	N024934-004AMS	MS	1	Hexavalent Chromium	07/19/17 7:43 PM	Not Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	07/19/17 7:52 PM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	07/19/17 8:02 PM	Reported
75	N024934-007A	SAMP	10	Hexavalent Chromium	07/19/17 8:11 PM	Not Reported
76	N024934-007AMS	MS	10	Hexavalent Chromium	07/19/17 8:21 PM	Not Reported
77	N024934-008A	SAMP	10	Hexavalent Chromium	07/19/17 8:30 PM	Not Reported
78	N024934-008AMS	MS	10	Hexavalent Chromium	07/19/17 8:39 PM	Not Reported
79	N024934-010A	SAMP	50	Hexavalent Chromium	07/19/17 8:49 PM	Not Reported
80	N024934-010AMS	MS	50	Hexavalent Chromium	07/19/17 8:58 PM	Not Reported
81	N024934-011A	SAMP	50	Hexavalent Chromium	07/19/17 9:08 PM	Not Reported
82	N024934-011AMS	MS	50	Hexavalent Chromium	07/19/17 9:17 PM	Not Reported
83	CCV-7	CCV	1	Hexavalent Chromium	07/19/17 9:27 PM	Reported
84	CCB-7	CCB	1	Hexavalent Chromium	07/19/17 9:36 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170719A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**19/Jul/17 22:07:04**
No. of Injections:	**87**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		07/10/2017 11:36	Finished	
2	BLANK	2	1000	Unknown		07/10/2017 11:46	Finished	
3	iBLANK	3	1000	Unknown		07/10/2017 11:56	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	07/10/2017 12:15	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	07/10/2017 12:26	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	07/10/2017 12:36	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	07/10/2017 12:45	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	07/10/2017 12:55	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	07/10/2017 13:04	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		07/19/2017 09:16	Finished	
11	BLANK	2	1000	Unknown		07/19/2017 09:27	Finished	
12	CCV-1,CCV,1,	4	1000	Unknown		07/19/2017 09:37	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	5	1000	Unknown		07/19/2017 09:48	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	6	1000	Unknown		07/19/2017 09:58	Finished	CCB R170713C
15	MB-H2O,MBLK,1	7	1000	Unknown		07/19/2017 10:07	Finished	MB R170713C
16	LCS-H2O,LCS,1	8	1000	Unknown		07/19/2017 10:17	Finished	LCS, IWST-170622D
17	N025072-001A,SAMP	10	1000	Unknown		07/19/2017 10:40	Finished	SAMP, 10mL
18	N025073-001A,SAMP	11	1000	Unknown		07/19/2017 10:51	Finished	SAMP, 10mL
19	N025073-003A,SAMP	12	1000	Unknown		07/19/2017 11:01	Finished	SAMP, 10mL
20	N025073-004A,SAMP	13	1000	Unknown		07/19/2017 11:10	Finished	SAMP, 10mL
21	N025073-005A,SAMP	14	1000	Unknown		07/19/2017 11:20	Finished	SAMP,2>10mL
22	N025073-007A,SAMP	15	1000	Unknown		07/19/2017 11:29	Finished	SAMP, 10mL
23	N025072-001AMS,MS	16	1000	Unknown		07/19/2017 11:39	Finished	MS (1ppb), IWST-170622D,10
24	N025072-001AMSD,M	17	1000	Unknown		07/19/2017 11:48	Finished	MSD (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	18	1000	Unknown		07/19/2017 11:58	Finished	CCV @5ppb, IWST-170622C
26	CCB-2,CCB,1,	19	1000	Unknown		07/19/2017 12:07	Finished	CCB R170713C
27	N025075-001A,SAMP	21	1000	Unknown		07/19/2017 12:20	Finished	SAMP, 10mL
28	N025075-002A,SAMP	22	1000	Unknown		07/19/2017 12:32	Finished	SAMP, 10mL
29	N025075-003A,SAMP	23	1000	Unknown		07/19/2017 12:41	Finished	SAMP, 10mL
30	N025075-004A,SAMP	24	1000	Unknown		07/19/2017 12:51	Finished	SAMP, 10mL
31	N025075-005A,SAMP	25	1000	Unknown		07/19/2017 13:00	Finished	SAMP, 10mL
32	N025075-006A,SAMP	26	1000	Unknown		07/19/2017 13:10	Finished	SAMP, 10mL
33	N025075-007A,SAMP	27	1000	Unknown		07/19/2017 13:19	Finished	SAMP, 10mL
34	N025075-008A,SAMP	28	1000	Unknown		07/19/2017 13:29	Finished	MS (5ppb), IWST-170622D,10
35	N025075-009A,SAMP	29	1000	Unknown		07/19/2017 13:38	Finished	MSD (5ppb), IWST-170622D,10
36	N025075-010A,SAMP	30	1000	Unknown		07/19/2017 13:48	Finished	MS (5ppb), IWST-170622D,10
37	CCV-3,CCV,1,	31	1000	Unknown		07/19/2017 13:57	Finished	CCV @10ppb, IWST-170622D
38	CCB-3,CCB,1,	32	1000	Unknown		07/19/2017 14:06	Finished	CCB R170713C
39	N025075-011A,SAMP	33	1000	Unknown		07/19/2017 14:16	Finished	SAMP, 10mL
40	N025075-012A,SAMP	34	1000	Unknown		07/19/2017 14:25	Finished	SAMP, 10mL
41	N025073-001AMS,MS	35	1000	Unknown		07/19/2017 14:35	Finished	MS (5ppb), IWST-170622D,10
42	N025073-003ADUP,D	36	1000	Unknown		07/19/2017 14:45	Finished	DUP, 10mL
43	LCS-2,LCS,1	1	1000	Unknown		07/19/2017 15:01	Finished	LCS, IWST-170622D
44	MB-2,MBLK,1	2	1000	Unknown		07/19/2017 15:12	Finished	MB R170626B
45	N025070-001A,SAMP	3	1000	Unknown		07/19/2017 15:21	Finished	SAMP, 10mL
46	N025086-001A,SAMP	5	1000	Unknown		07/19/2017 15:35	Finished	SAMP, 0.01>10mL
47	N025086-002A,SAMP	6	1000	Unknown		07/19/2017 15:46	Finished	SAMP, 0.01>10mL
48	N025086-003A,SAMP	7	1000	Unknown		07/19/2017 15:56	Finished	SAMP, 0.01>10mL
49	CCV-4,CCV1,1,	8	1000	Unknown		07/19/2017 16:05	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	9	1000	Unknown		07/19/2017 16:15	Finished	CCB R170713C
51	N025086-004A,SAMP	10	1000	Unknown		07/19/2017 16:24	Finished	SAMP, 0.01>10mL
52	N025086-005A,SAMP	11	1000	Unknown		07/19/2017 16:33	Finished	SAMP, 0.01>10mL
53	N025086-006A,SAMP	12	1000	Unknown		07/19/2017 16:43	Finished	SAMP, 0.01>10mL
54	N025086-002AMS,MS	13	1000	Unknown		07/19/2017 16:52	Finished	MS (5ppb), IWST-170622D,0.0
55	N025086-002AMSD,M	14	1000	Unknown		07/19/2017 17:02	Finished	MSD (5ppb), IWST-170622D,0
56	N025086-006ADUP,D	15	1000	Unknown		07/19/2017 17:11	Finished	DUP, 0.01>10mL
57	N025086-007A,SAMP	16	1000	Unknown		07/19/2017 17:21	Finished	SAMP, 0.05>10mL
58	N025086-008A,SAMP	17	1000	Unknown		07/19/2017 17:30	Finished	SAMP, 0.2>10mL
59	N025086-009A,SAMP	18	1000	Unknown		07/19/2017 17:40	Finished	SAMP, 0.005>10mL
60	N025086-009AMS,MS	19	1000	Unknown		07/19/2017 17:49	Finished	MS (5ppb), IWST-170622D,0.0

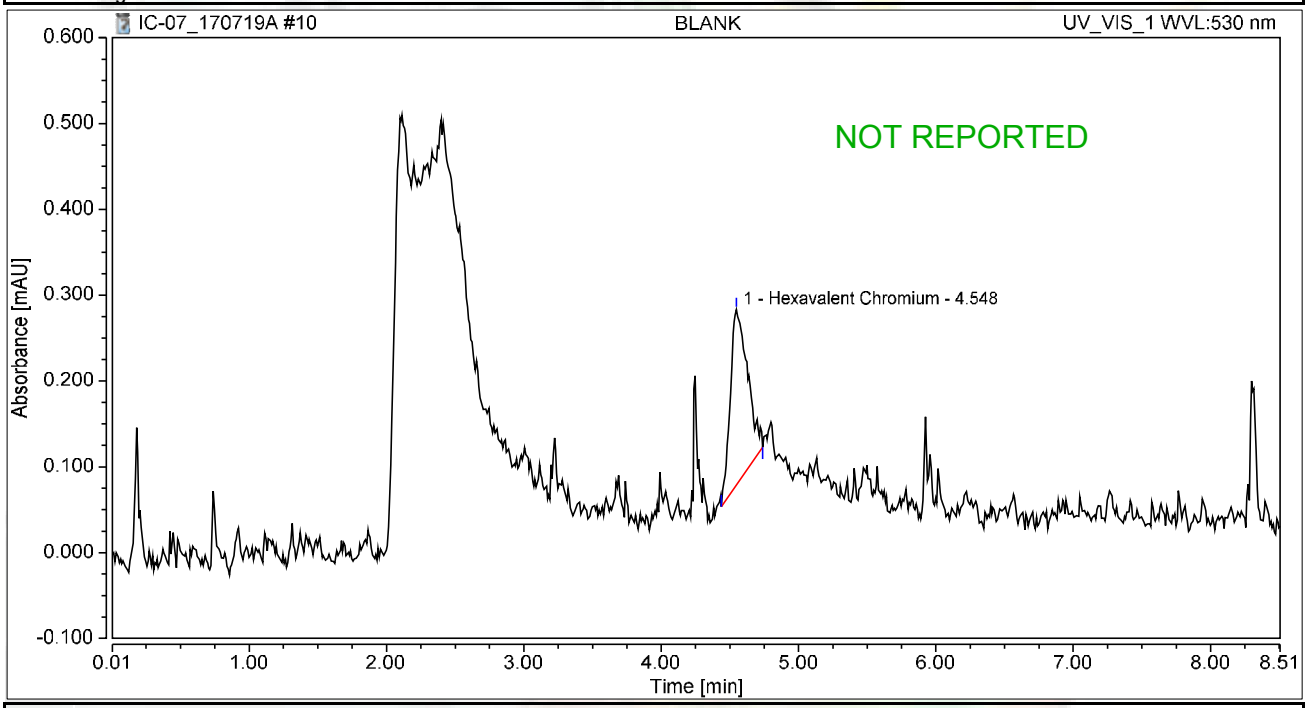
61	CCV-5,CCV,1,	20	1000	Unknown		07/19/2017 17:59	Finished	CCV @5ppb, IWST-170622C
62	CCB-5,CCB,1,	21	1000	Unknown		07/19/2017 18:08	Finished	CCB R170626B
63	N025086-010A,SAMP	22	1000	Unknown		07/19/2017 18:18	Finished	SAMP, 0.005>10mL
64	N025086-011A,SAMP	23	1000	Unknown		07/19/2017 18:27	Finished	SAMP, 0.005>10mL
65	N025086-012A,SAMP	24	1000	Unknown		07/19/2017 18:36	Finished	SAMP, 0.005>10mL
66	N025086-013A,SAMP	25	1000	Unknown		07/19/2017 18:46	Finished	SAMP, 0.005>10mL
67	N025086-014A,SAMP	26	1000	Unknown		07/19/2017 18:55	Finished	SAMP, 0.005>10mL
68	N025086-015A,SAMP	27	1000	Unknown		07/19/2017 19:05	Finished	SAMP, 0.005>10mL
69	N025086-016A,SAMP	28	1000	Unknown		07/19/2017 19:14	Finished	SAMP, 0.005>10mL
70	N025086-0017A,SAM	29	1000	Unknown		07/19/2017 19:24	Finished	SAMP, 0.005>10mL
71	N024934-004A,SAMP	30	1000	Unknown		07/19/2017 19:33	Finished	SAMP, 10mL
72	N024934-004AMS,MS	31	1000	Unknown		07/19/2017 19:43	Finished	MS (5ppb), IWST-170622D,10
73	CCV-6,CCV1,1,	32	1000	Unknown		07/19/2017 19:52	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	33	1000	Unknown		07/19/2017 20:02	Finished	CCB R170626B
75	N024934-007A,SAMP	34	1000	Unknown		07/19/2017 20:11	Finished	SAMP, 1>10mL
76	N024934-007AMS,MS	35	1000	Unknown		07/19/2017 20:21	Finished	MS (5ppb), IWST-170622D,1>1
77	N024934-008A,SAMP	36	1000	Unknown		07/19/2017 20:30	Finished	SAMP, 1>10mL
78	N024934-008AMS,MS	37	1000	Unknown		07/19/2017 20:39	Finished	MS (5ppb), IWST-170622D,1>1
79	N024934-010A,SAMP	38	1000	Unknown		07/19/2017 20:49	Finished	SAMP, 0.2>10mL
80	N024934-010AMS,MS	39	1000	Unknown		07/19/2017 20:58	Finished	MS (5ppb), IWST-170622D,0.2
81	N024934-011A,SAMP	40	1000	Unknown		07/19/2017 21:08	Finished	SAMP, 0.2>10mL
82	N024934-011AMS,MS	41	1000	Unknown		07/19/2017 21:17	Finished	MS (5ppb), IWST-170622D,0.2
83	CCV-7,CCV,1,	42	1000	Unknown		07/19/2017 21:27	Finished	CCV @5ppb, IWST-170622C
84	CCB-7,CCB,1,	43	1000	Unknown		07/19/2017 21:36	Finished	CCB R170626B
85	SHUTDOWN	44	1000	Unknown		07/19/2017 21:46	Finished	
86	Eluent: R170718F	45	1000	Unknown		n.a.	Finished	Eluent
87	PCR: R170719A	46	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 09:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

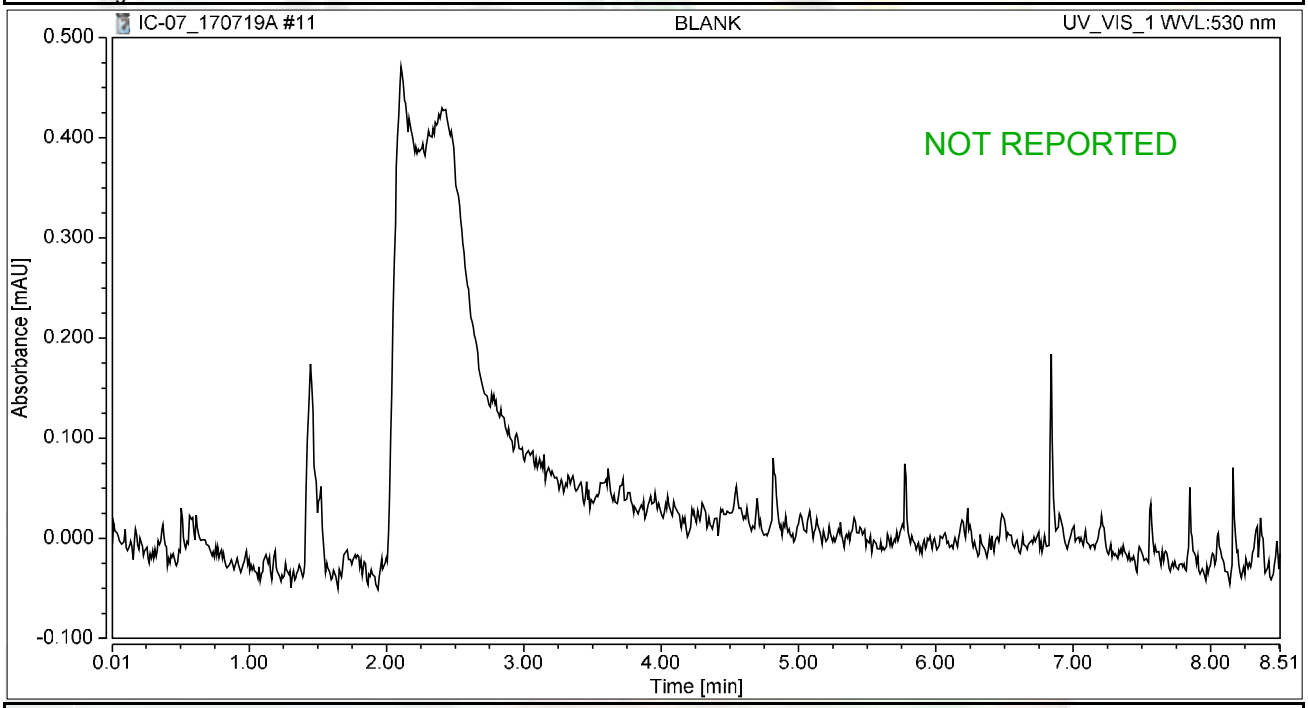
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	0.030	0.205	100.00	100.00	0.1163
Total:			**0.030**	**0.205**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

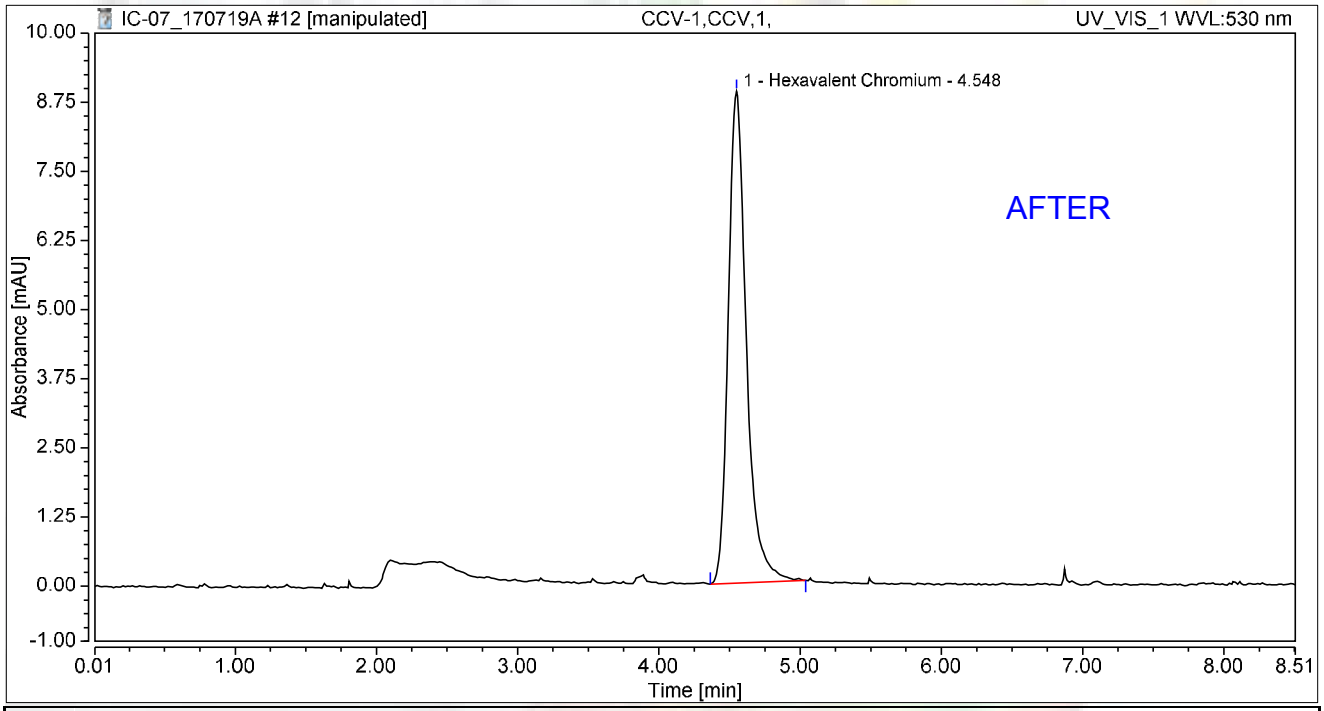
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 09:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.320	8.893	100.00	100.00	5.1888
Total:			**1.320**	**8.893**	**100.00**	**100.00**	

rba 7/26/2017

Reviewed by: Nancy 8/3/2017

My first report/Integration

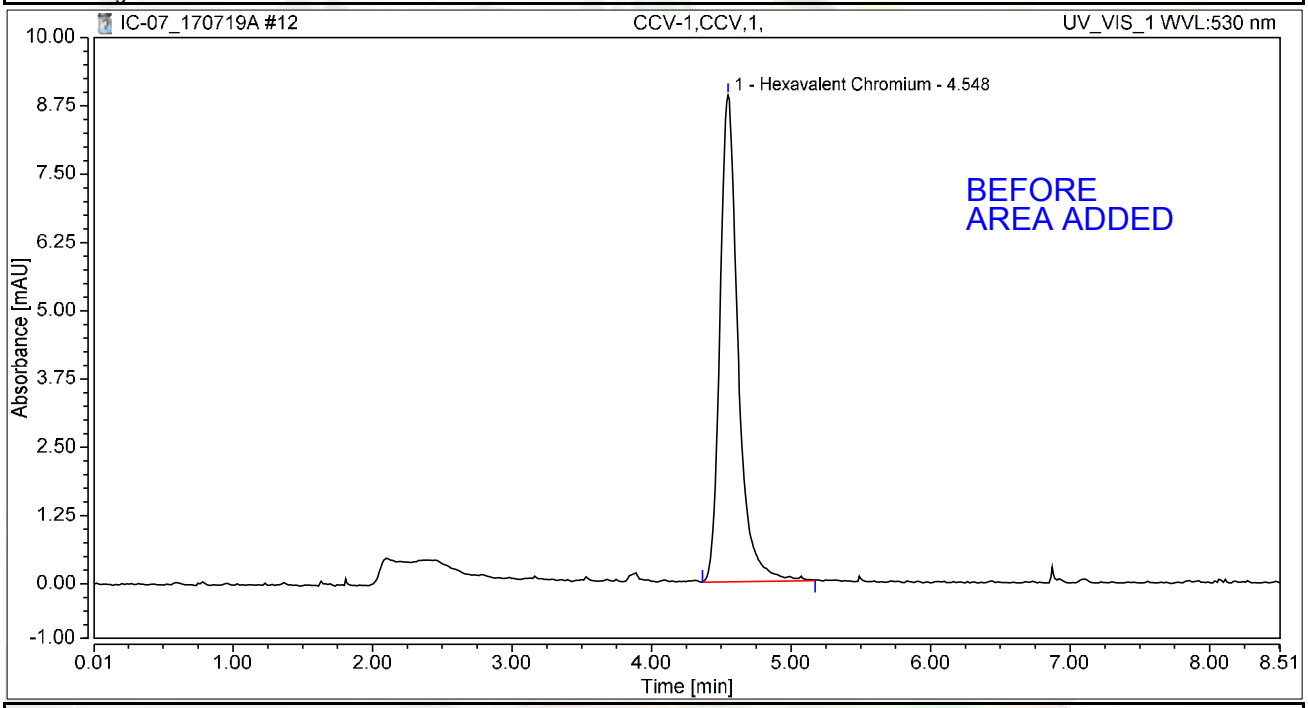
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 09:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.341	8.907	100.00	100.00	5.2732
Total:			**1.341**	**8.907**	**100.00**	**100.00**	

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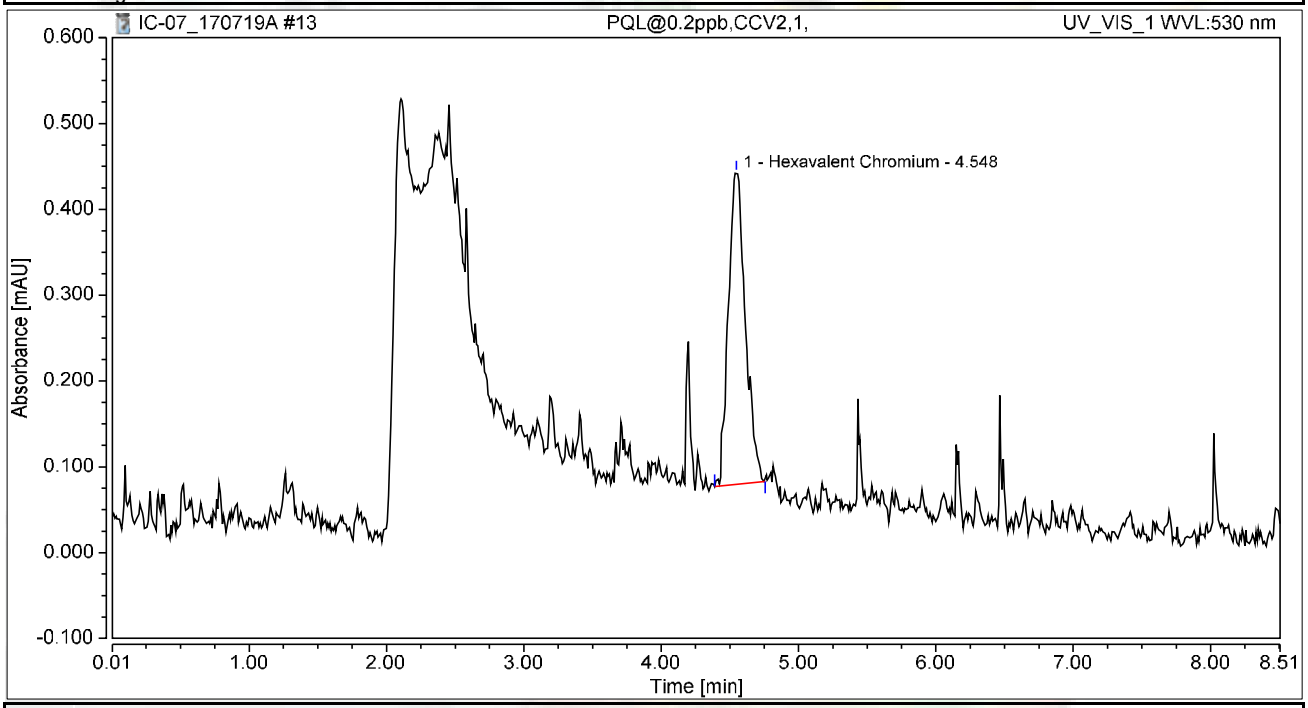
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

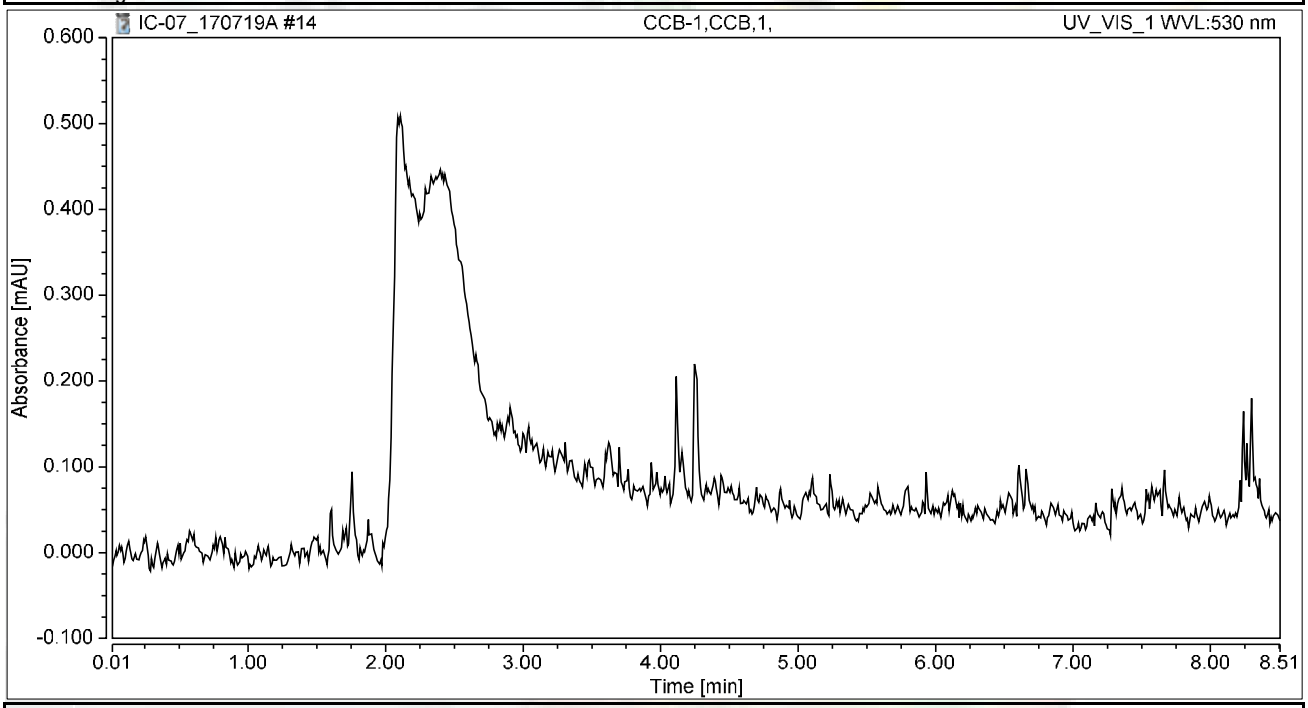
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	0.052	0.363	100.00	100.00	0.2045
Total:			**0.052**	**0.363**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 09:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

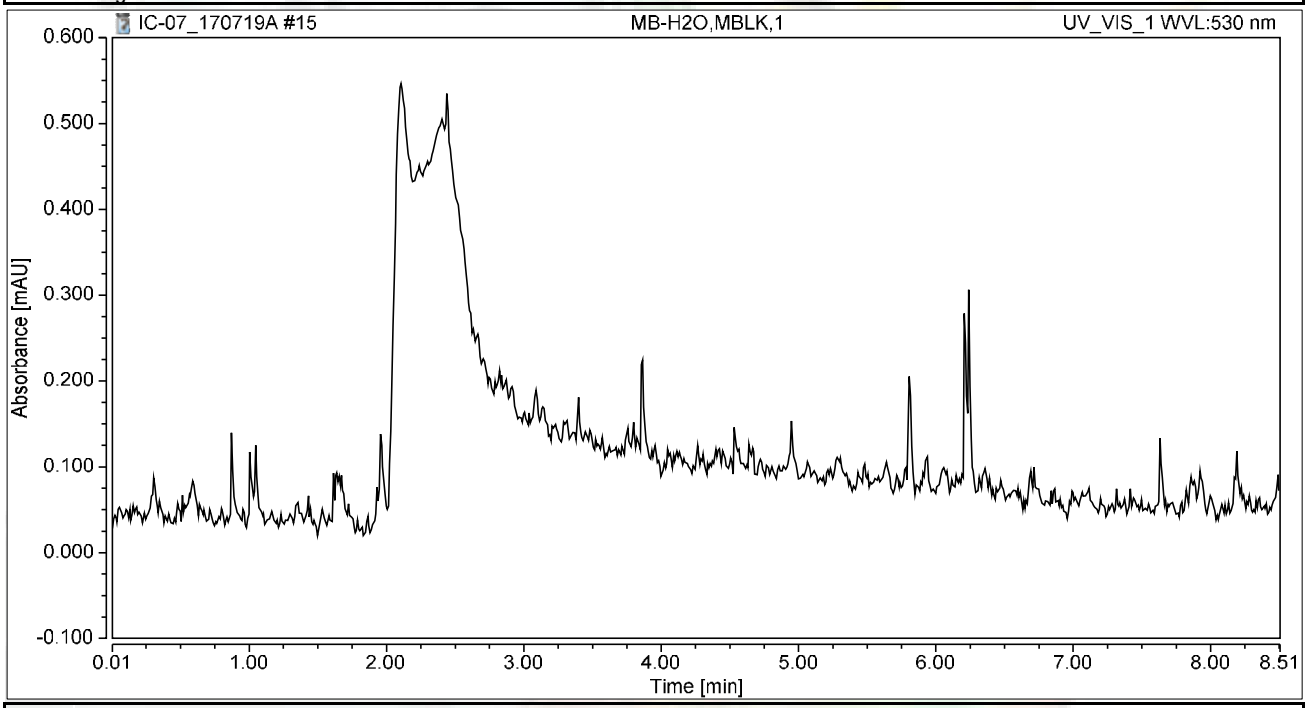
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

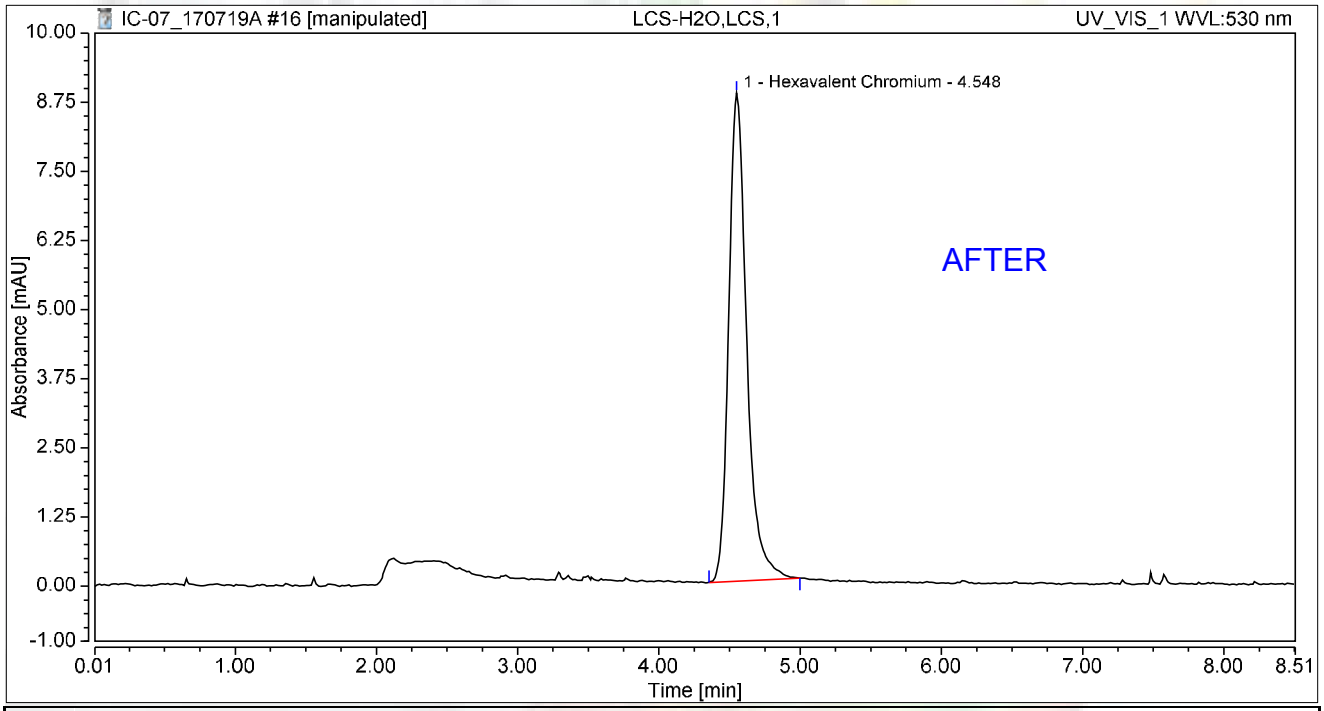
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 10:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.305	8.826	100.00	100.00	5.1302
Total:			**1.305**	**8.826**	**100.00**	**100.00**	

rba 7/26/2017

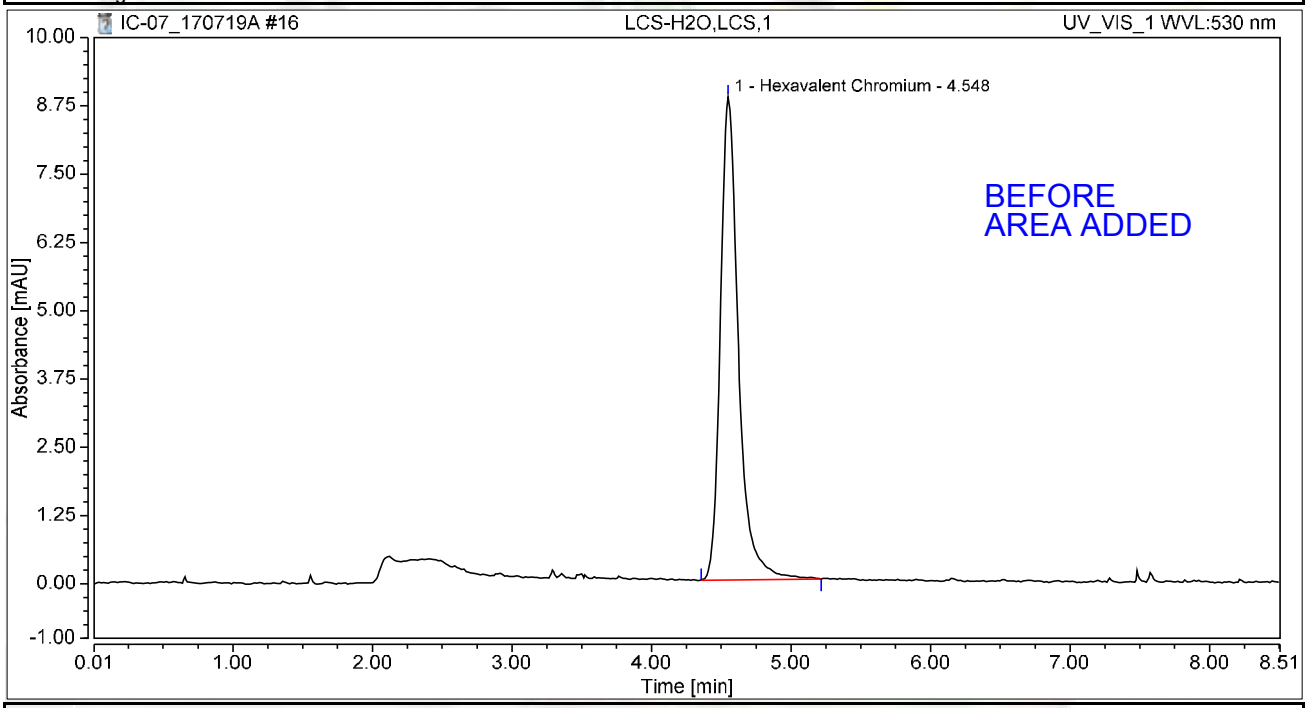
Reviewed
Nancy 8/3/2017

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 10:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.332	8.844	100.00	100.00	5.2350
Total:			**1.332**	**8.844**	**100.00**	**100.00**	

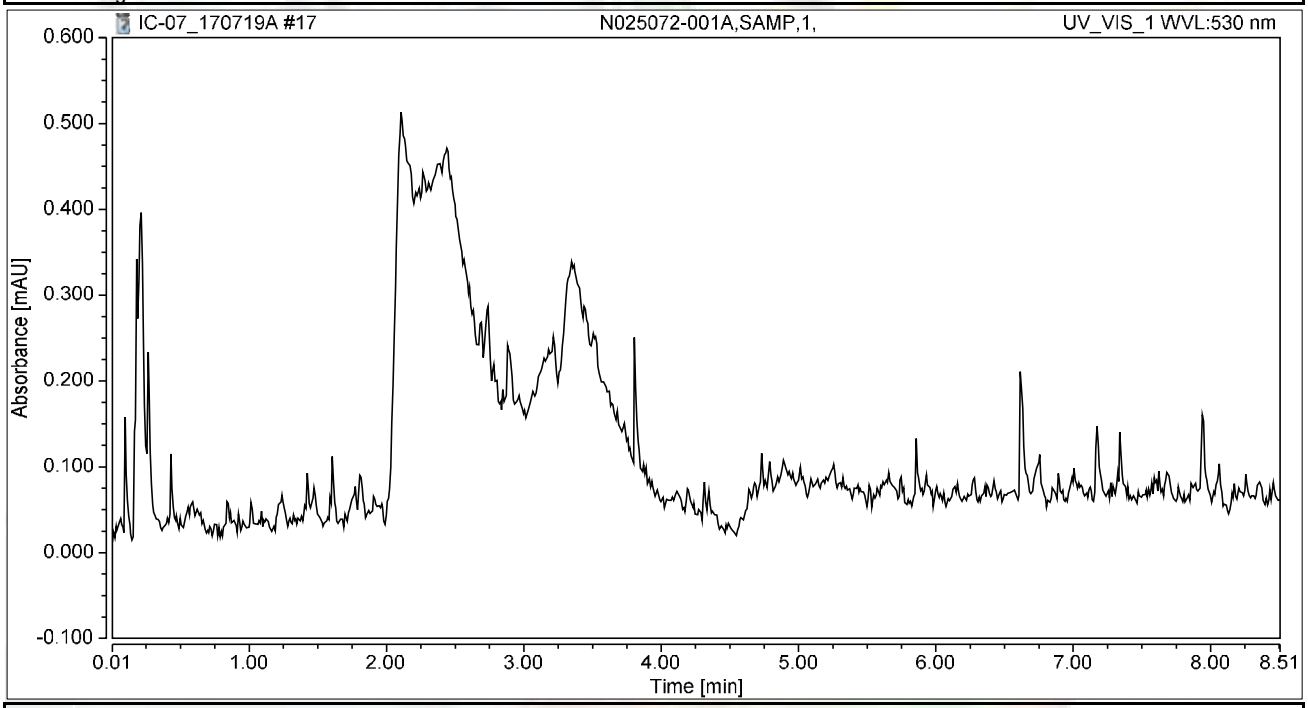
rba 7/26/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025072-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 10:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

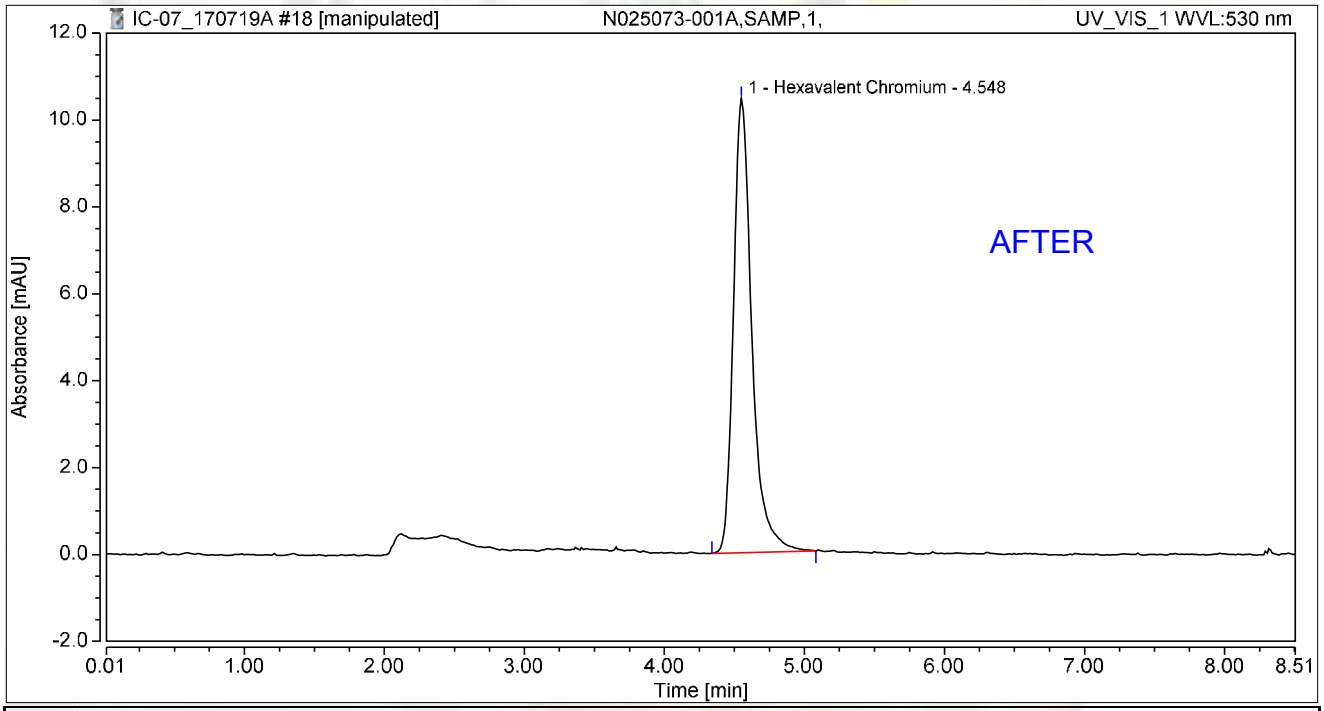
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025073-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.593	10.452	100.00	100.00	6.2632
Total:			**1.593**	**10.452**	**100.00**	**100.00**	

rba 7/26/2017

Reviewed by: Nancy 8/3/2017

My first report/integration

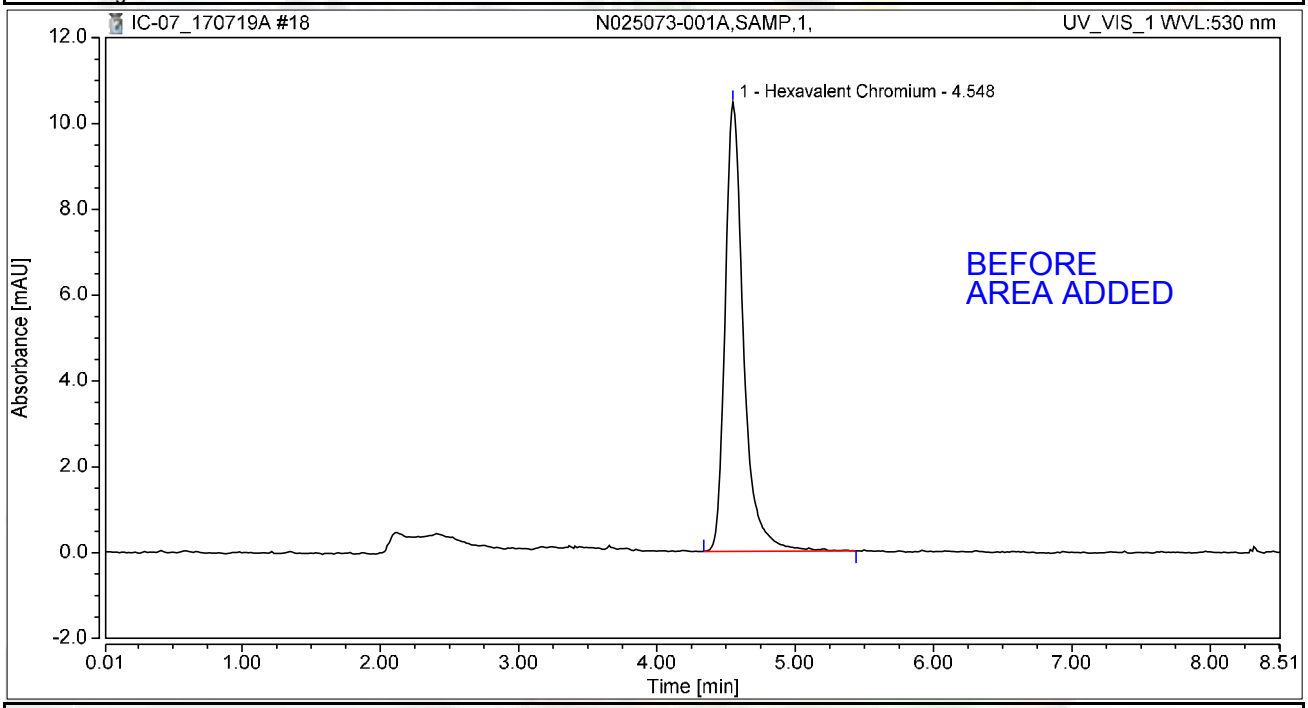
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025073-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	1.618	10.464	100.00	100.00	6.3609
Total:			**1.618**	**10.464**	**100.00**	**100.00**	

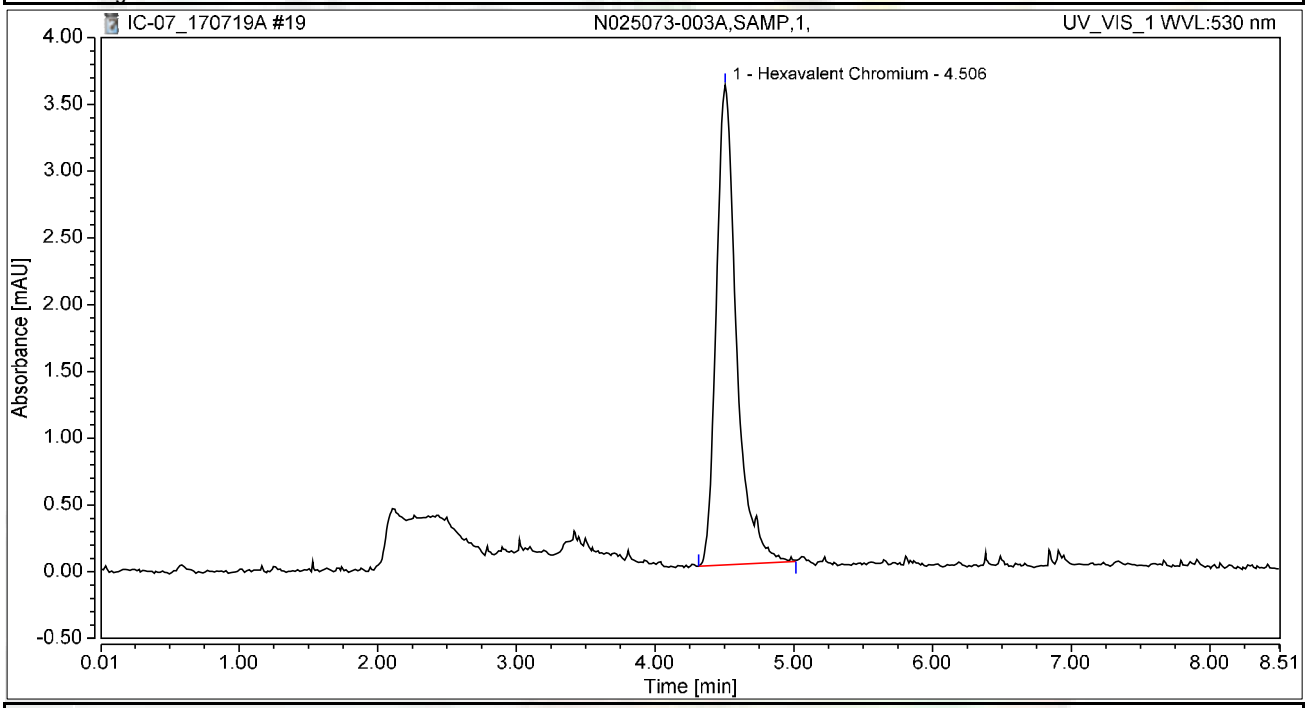
rba 7/26/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025073-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

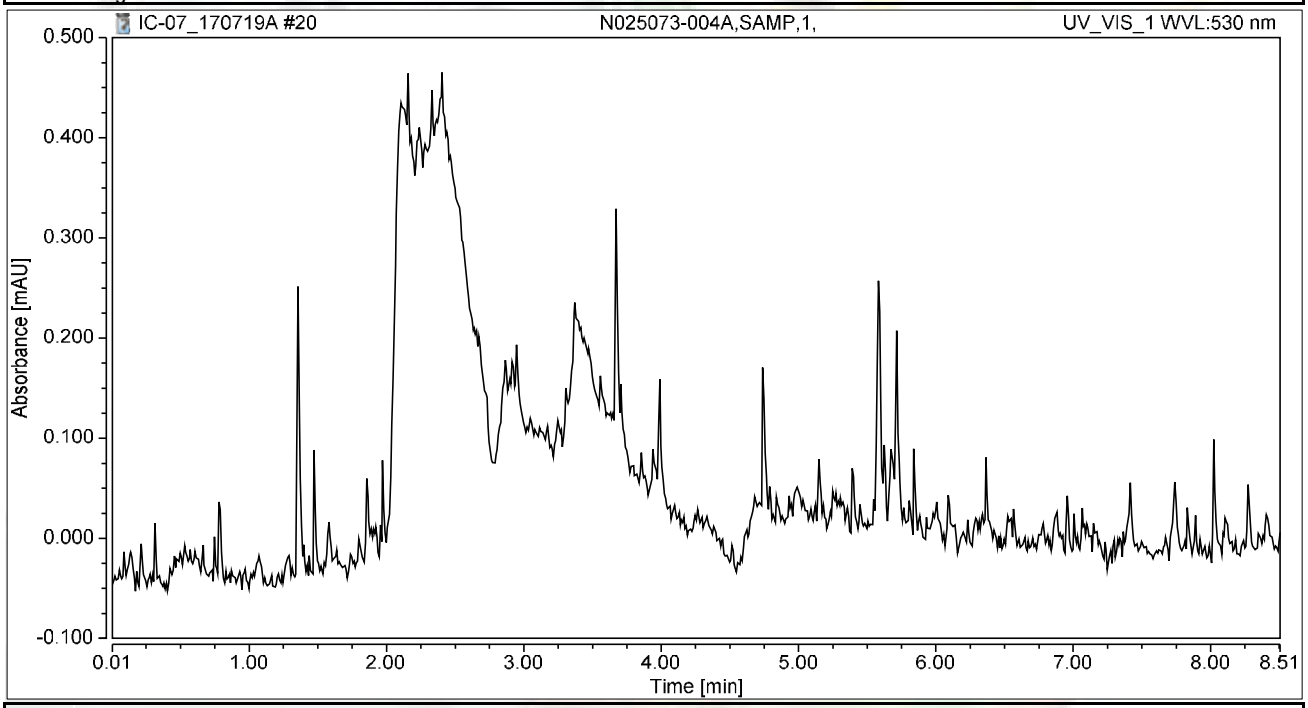
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.608	3.594	100.00	100.00	2.3903
Total:			**0.608**	**3.594**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025073-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

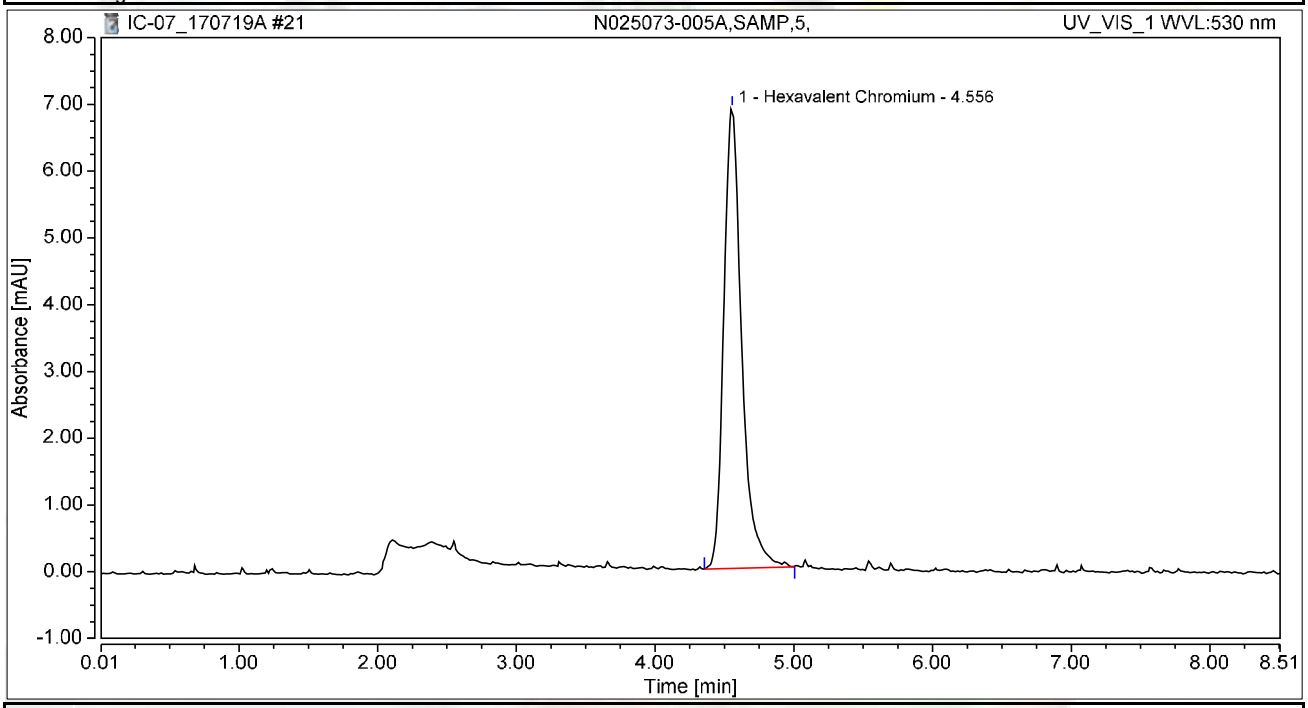
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025073-005A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

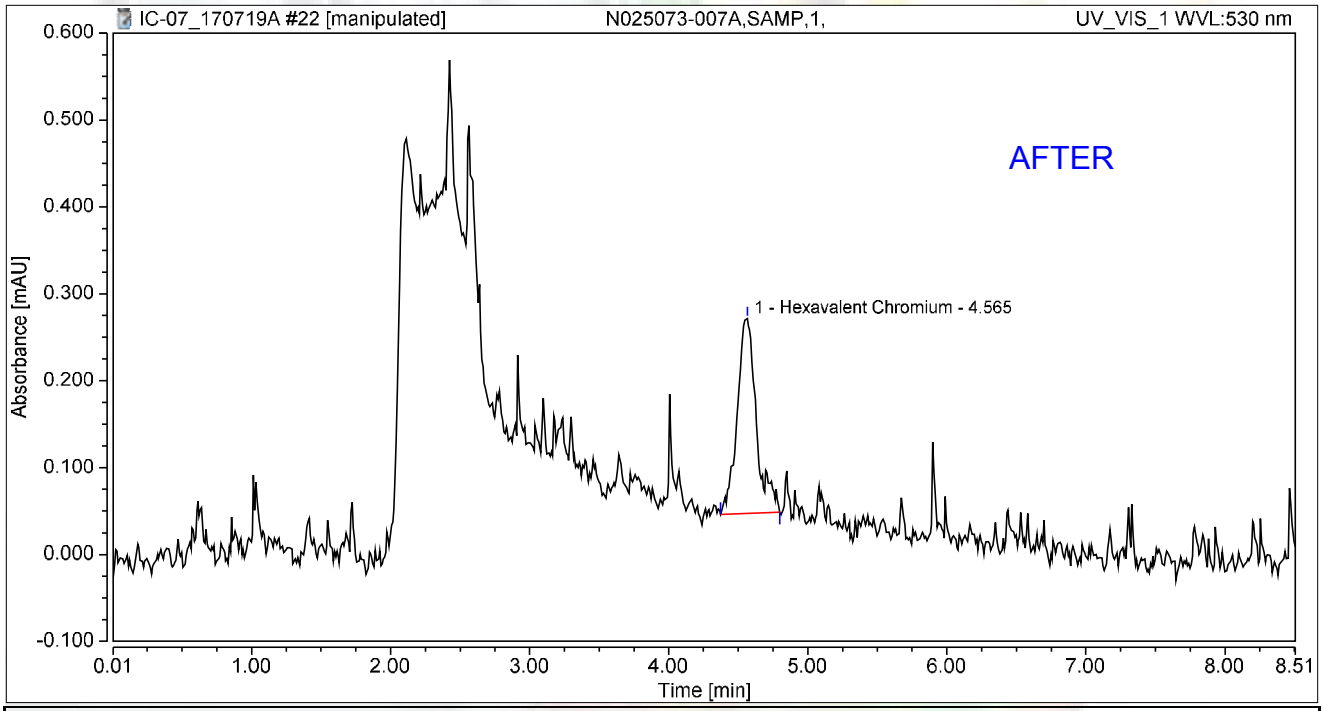
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	1.037	6.899	100.00	100.00	4.0773
Total:			**1.037**	**6.899**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025073-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.565	0.036	0.224	100.00	100.00	0.1408
Total:			**0.036**	**0.224**	**100.00**	**100.00**	

rba 7/26/2017

Reviewed
My last report/Integration
by Nancy 8/3/2017

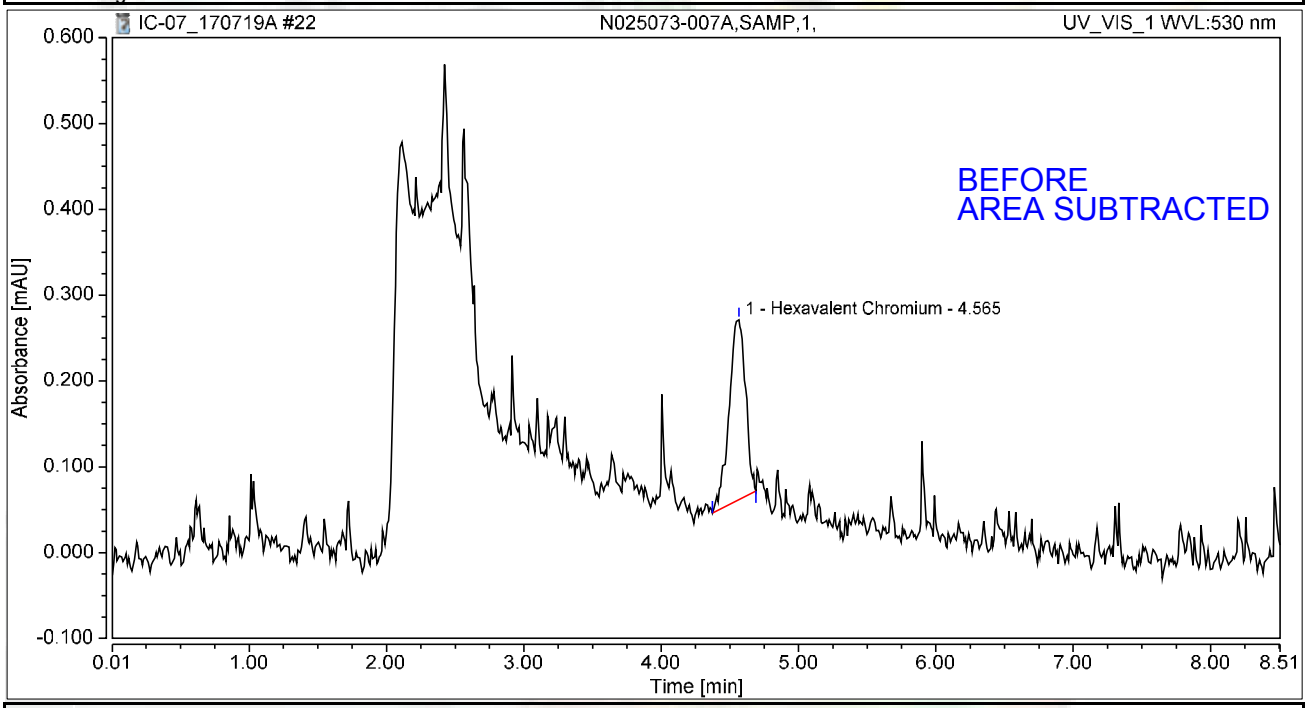
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025073-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.565	0.029	0.210	100.00	100.00	0.1142
Total:			**0.029**	**0.210**	**100.00**	**100.00**	

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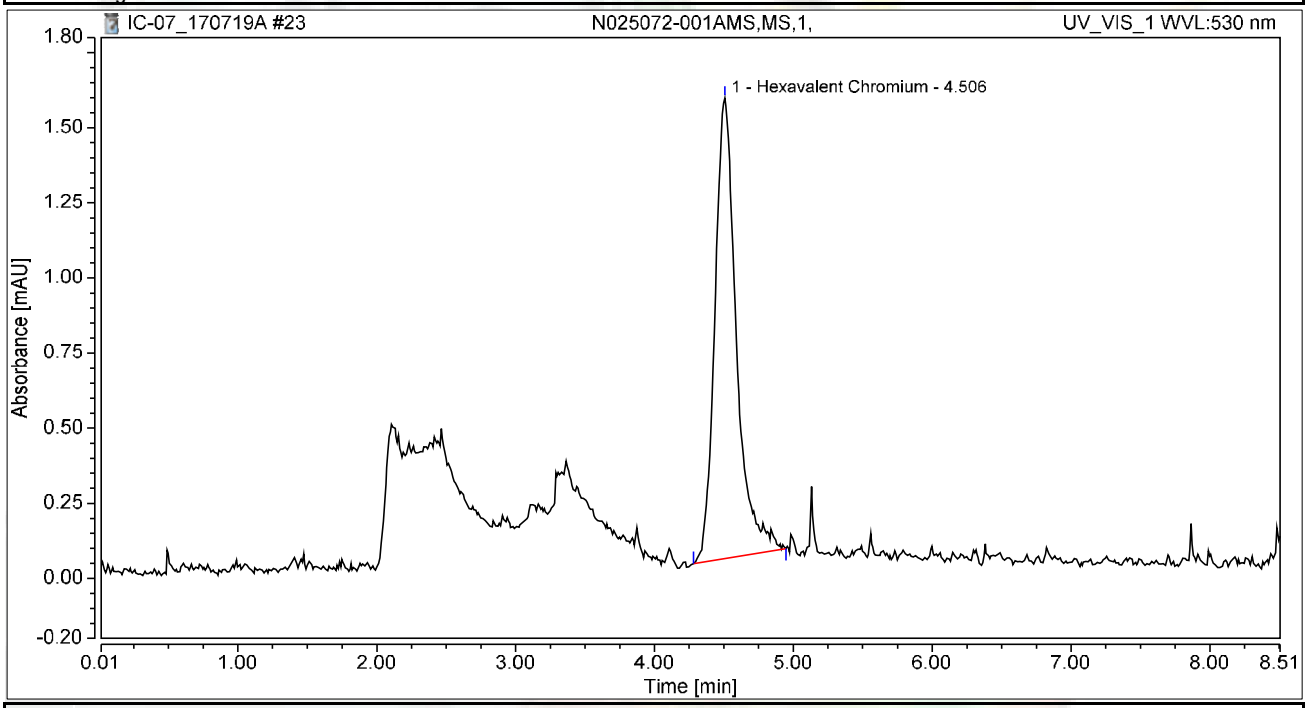
Chromatogram and Results

Injection Details

Injection Name:	**N025072-001AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

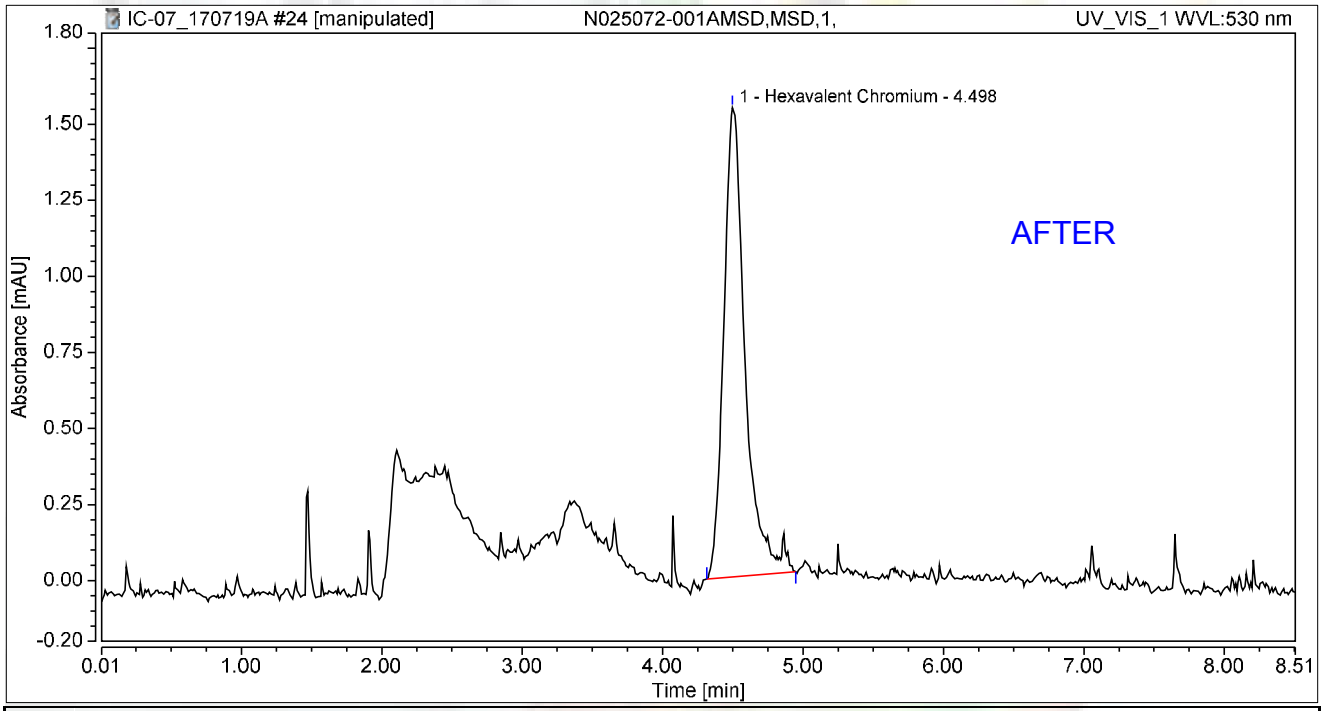
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.276	1.533	100.00	100.00	1.0838
Total:			**0.276**	**1.533**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025072-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.498	0.273	1.544	100.00	100.00	1.0731
Total:			**0.273**	**1.544**	**100.00**	**100.00**	

rba 7/26/2017

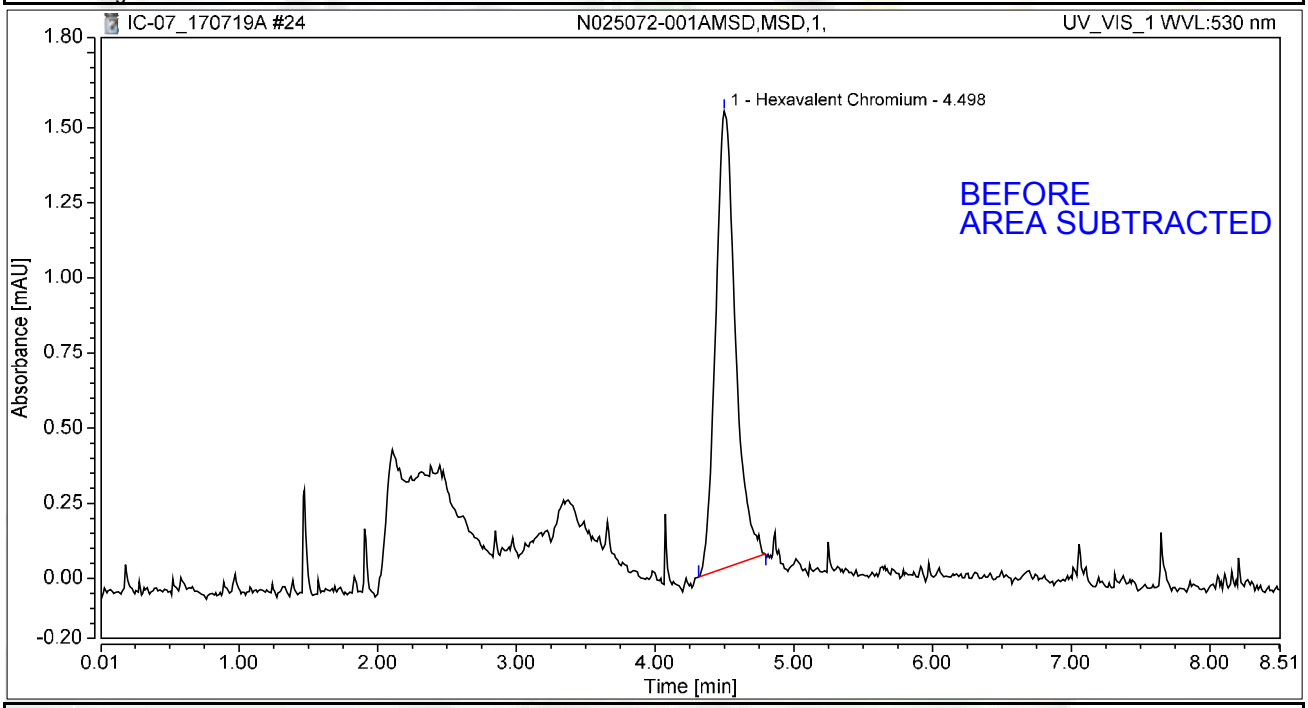
Reviewed by: Dionex 8/3/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025072-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.498	0.251	1.521	100.00	100.00	0.9878
Total:			**0.251**	**1.521**	**100.00**	**100.00**	

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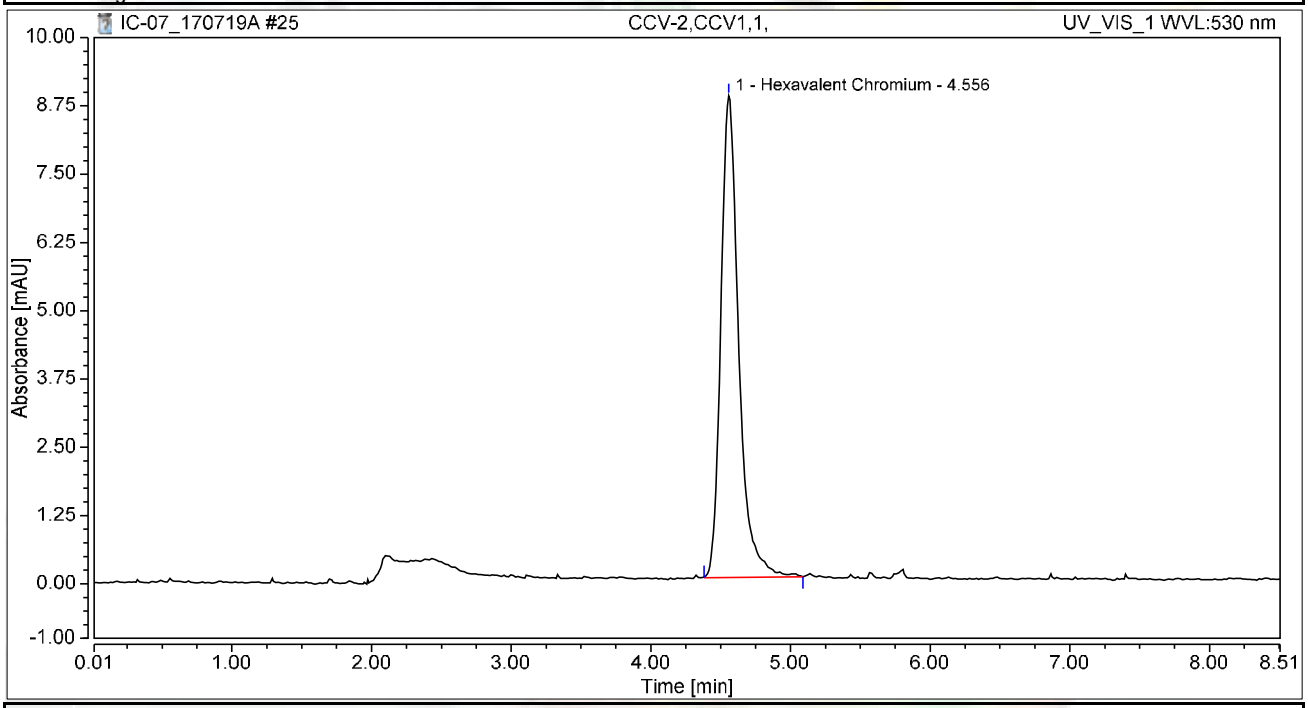
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 11:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

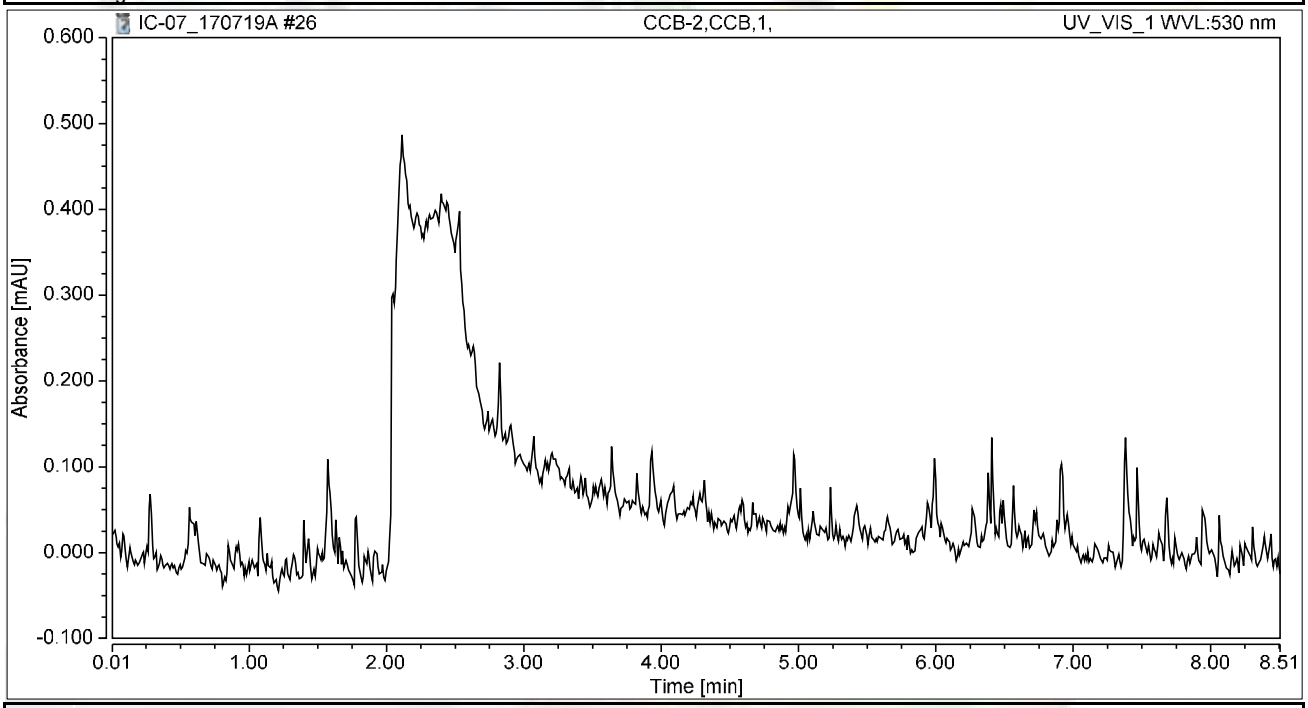
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	1.306	8.816	100.00	100.00	5.1322
Total:			**1.306**	**8.816**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 12:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

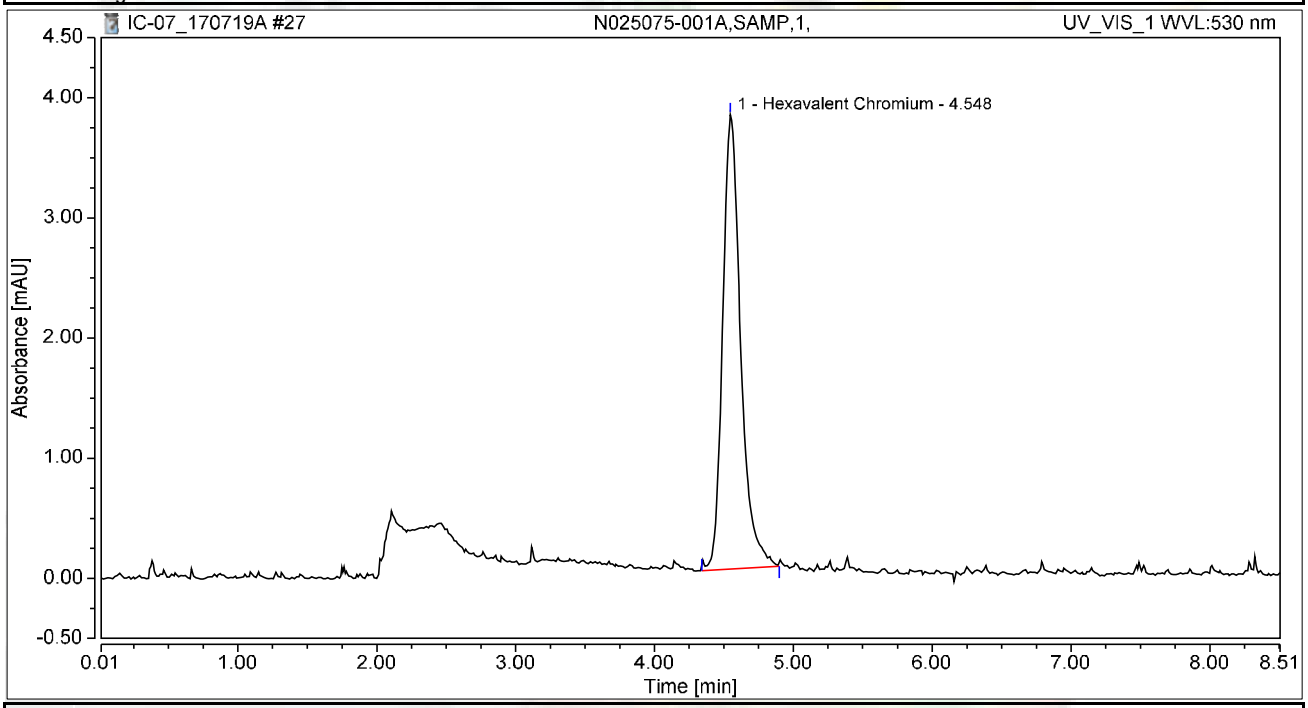
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

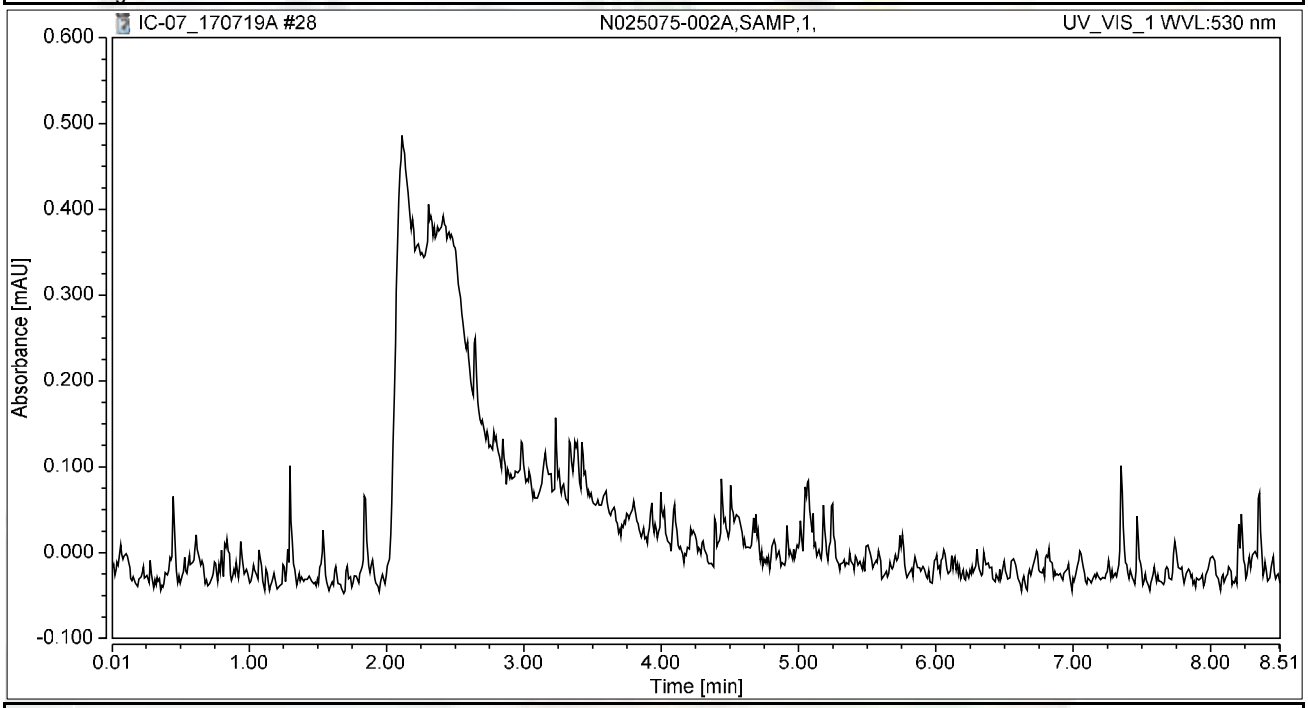
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	0.568	3.779	100.00	100.00	2.2343
Total:			**0.568**	**3.779**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

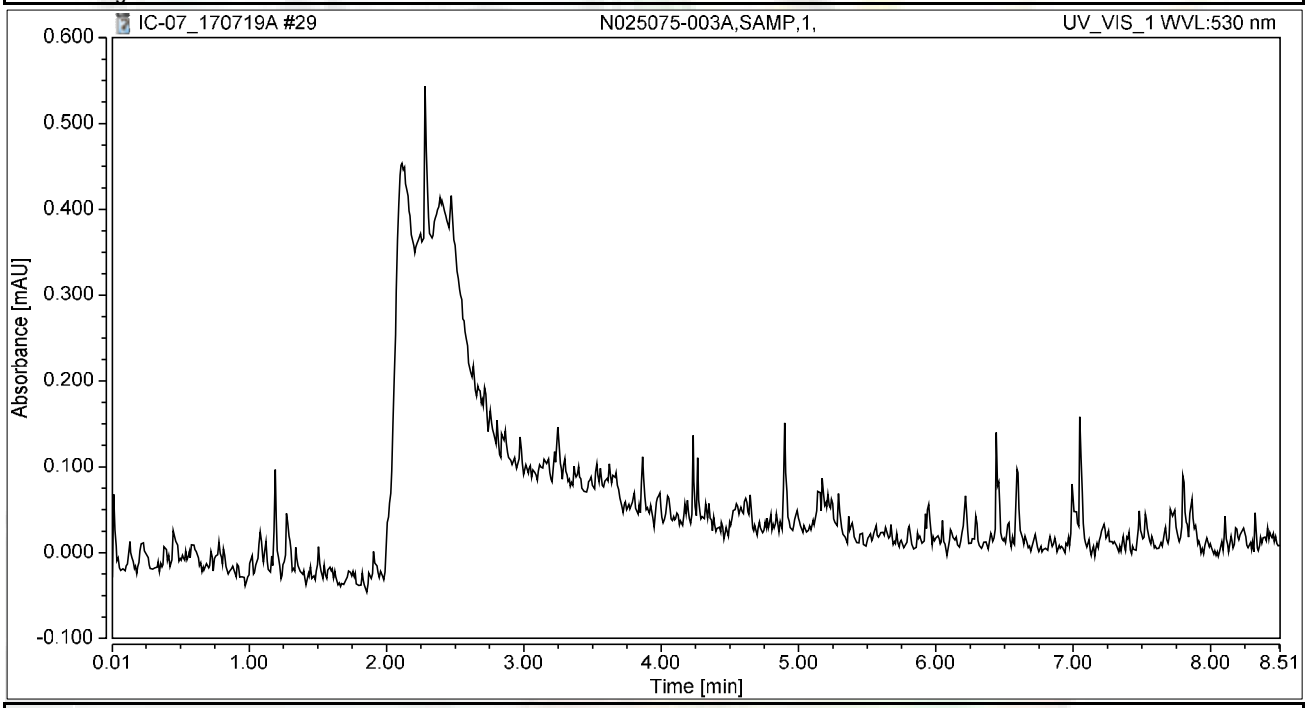
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 12:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

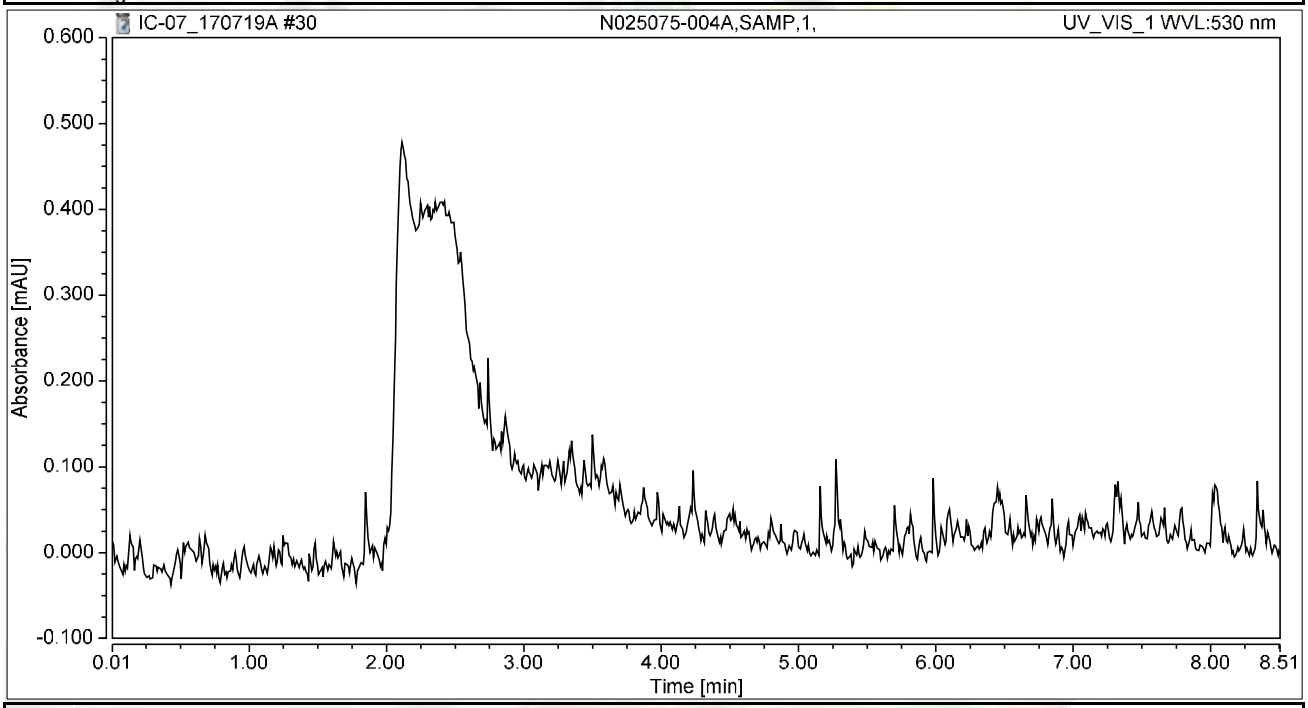
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 12:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

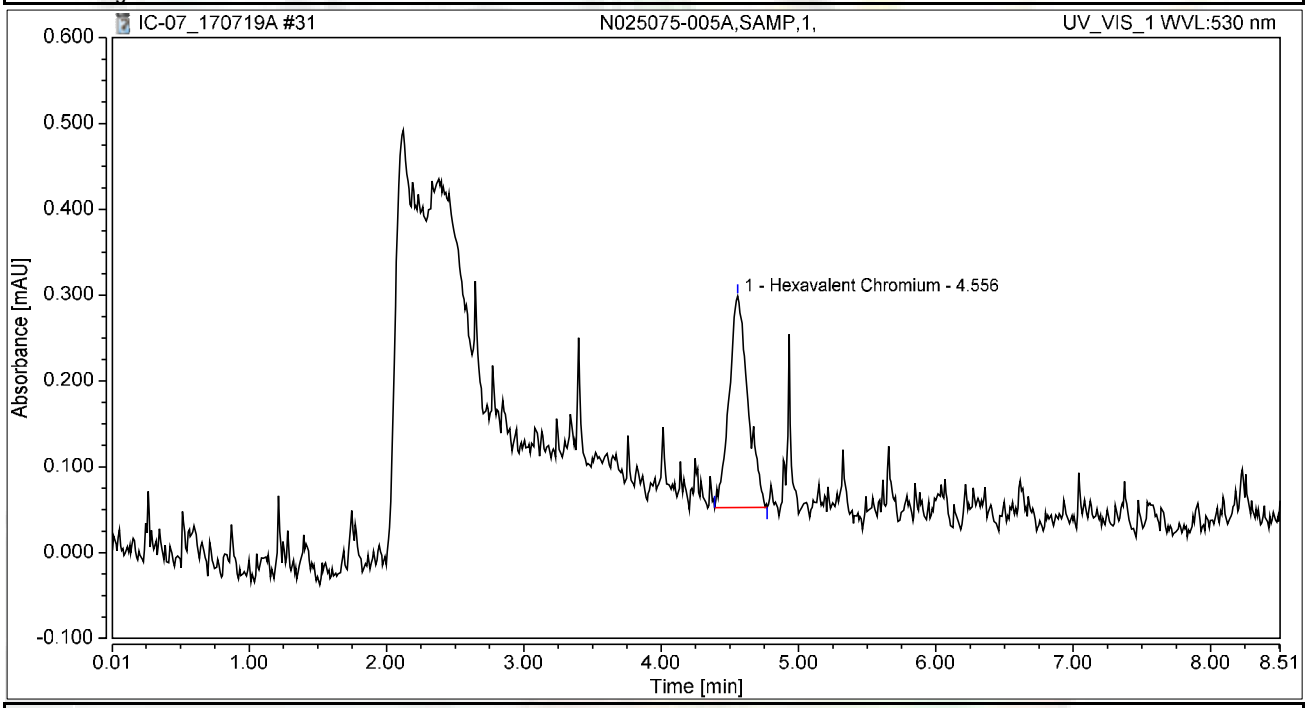
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

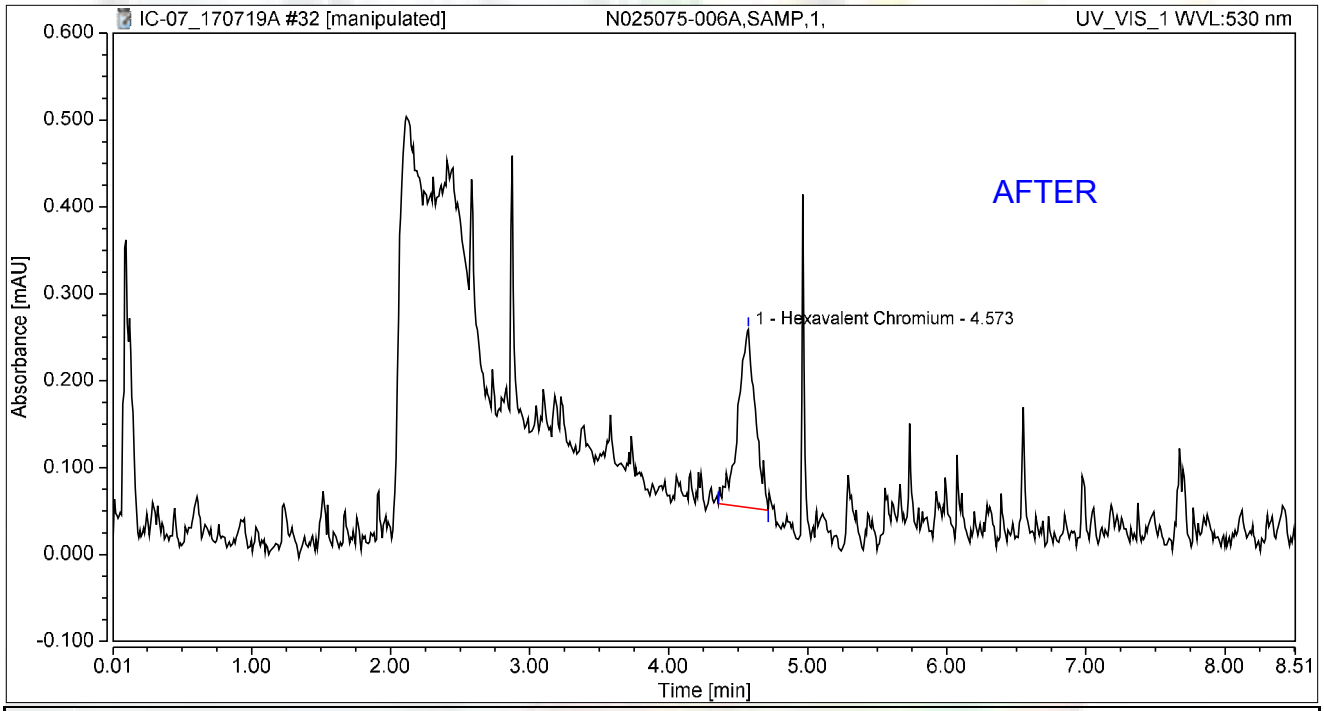
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	0.039	0.246	100.00	100.00	0.1530
Total:			**0.039**	**0.246**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.573	0.029	0.205	100.00	100.00	0.1160
Total:			**0.029**	**0.205**	**100.00**	**100.00**	

rba 7/26/2017

Reviewed by: My first report/integration
Nancy 8/3/2017

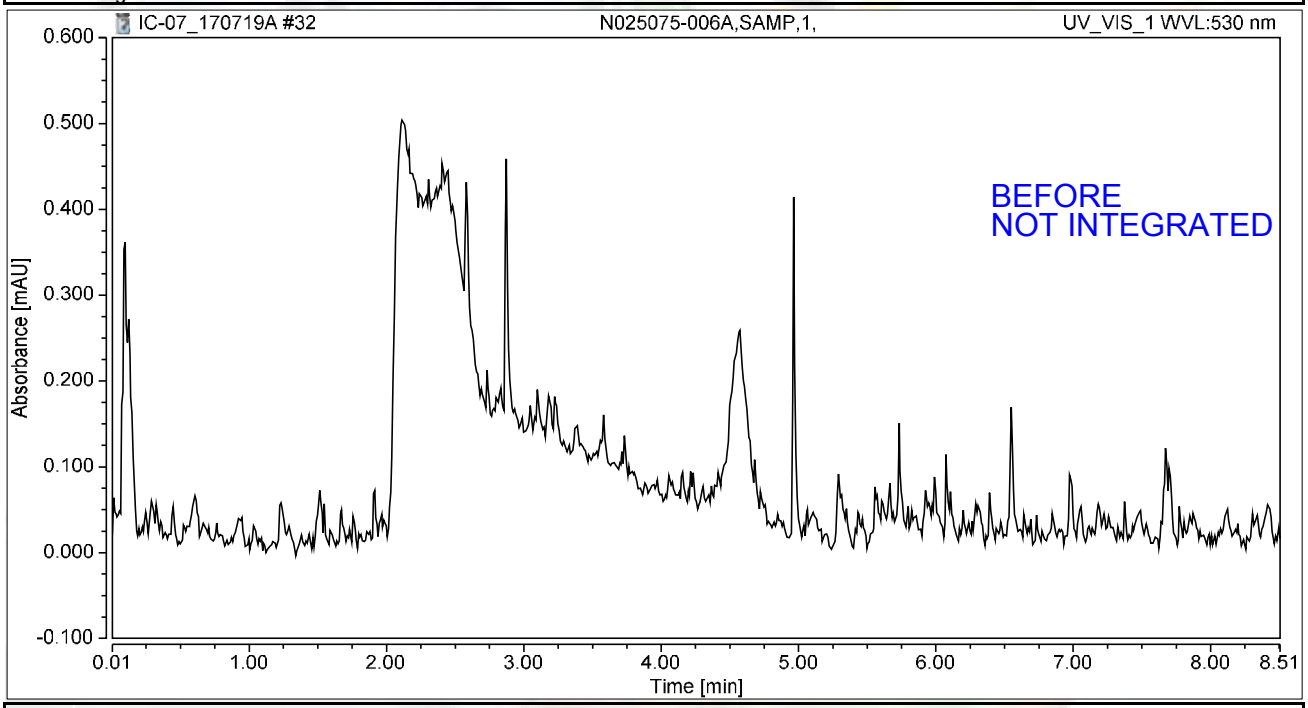
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025075-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

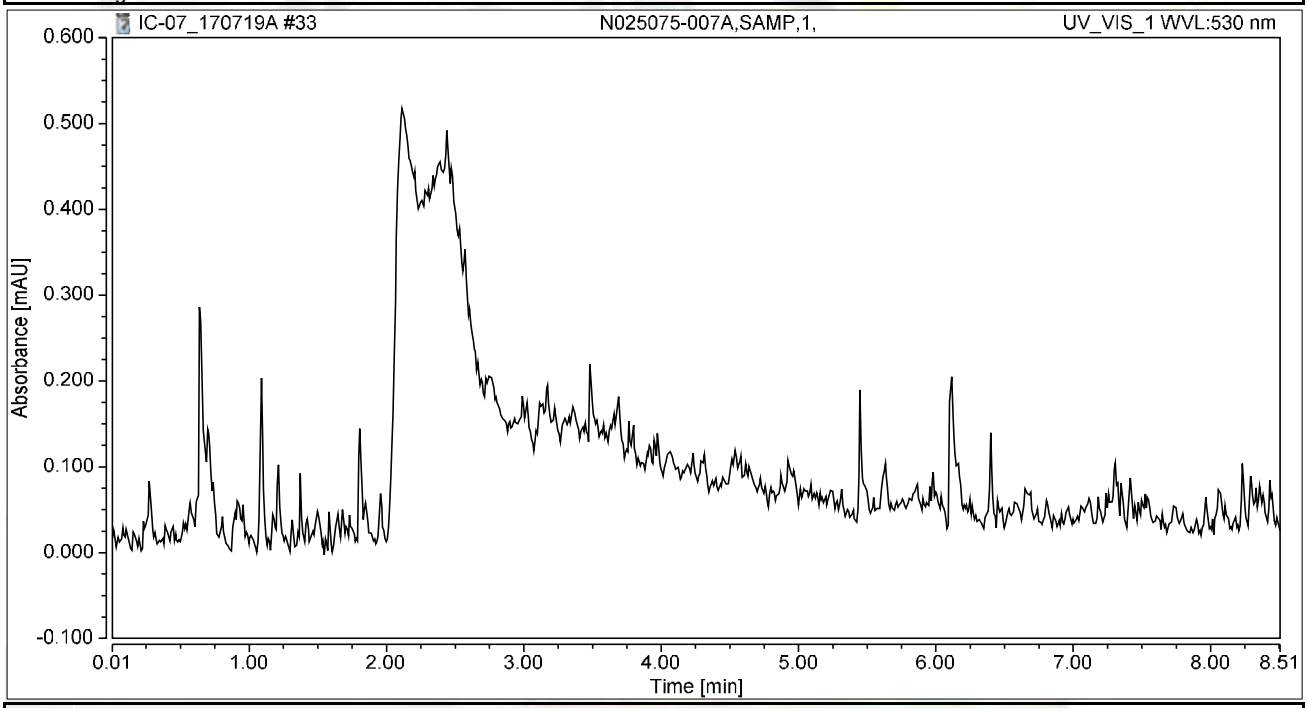
rba 7/26/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025075-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

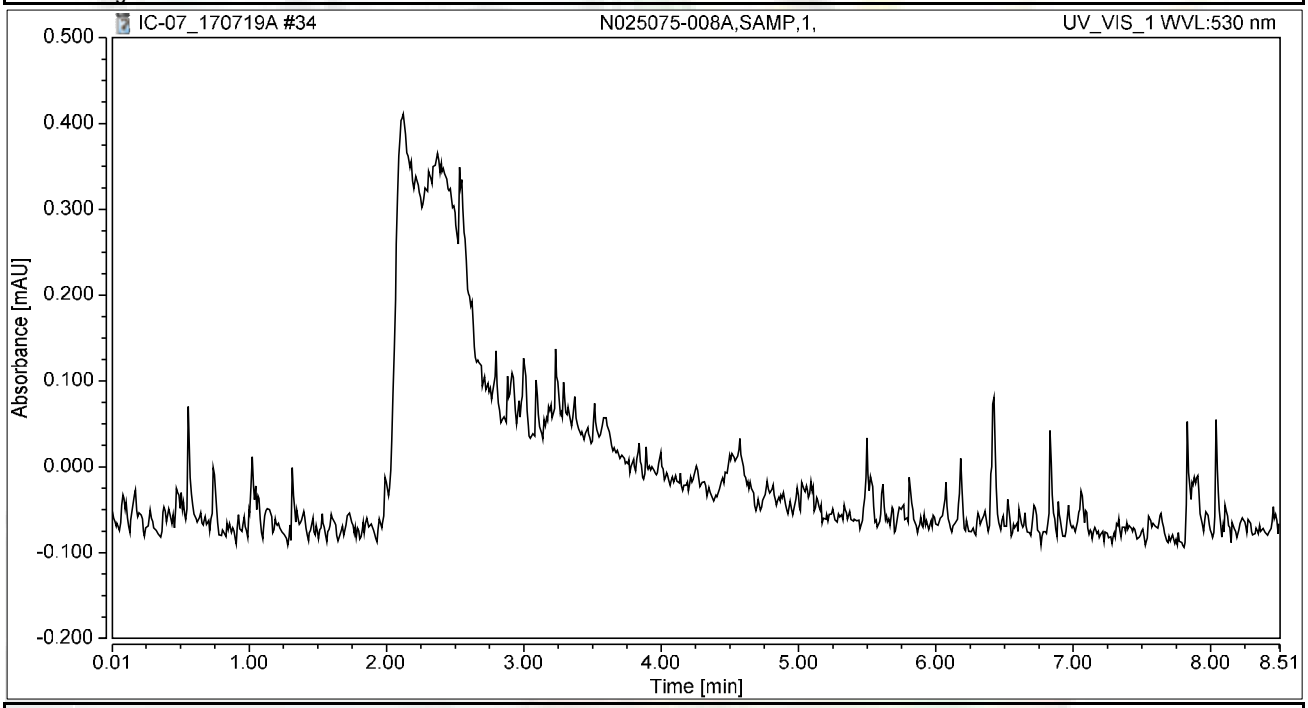
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-008A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

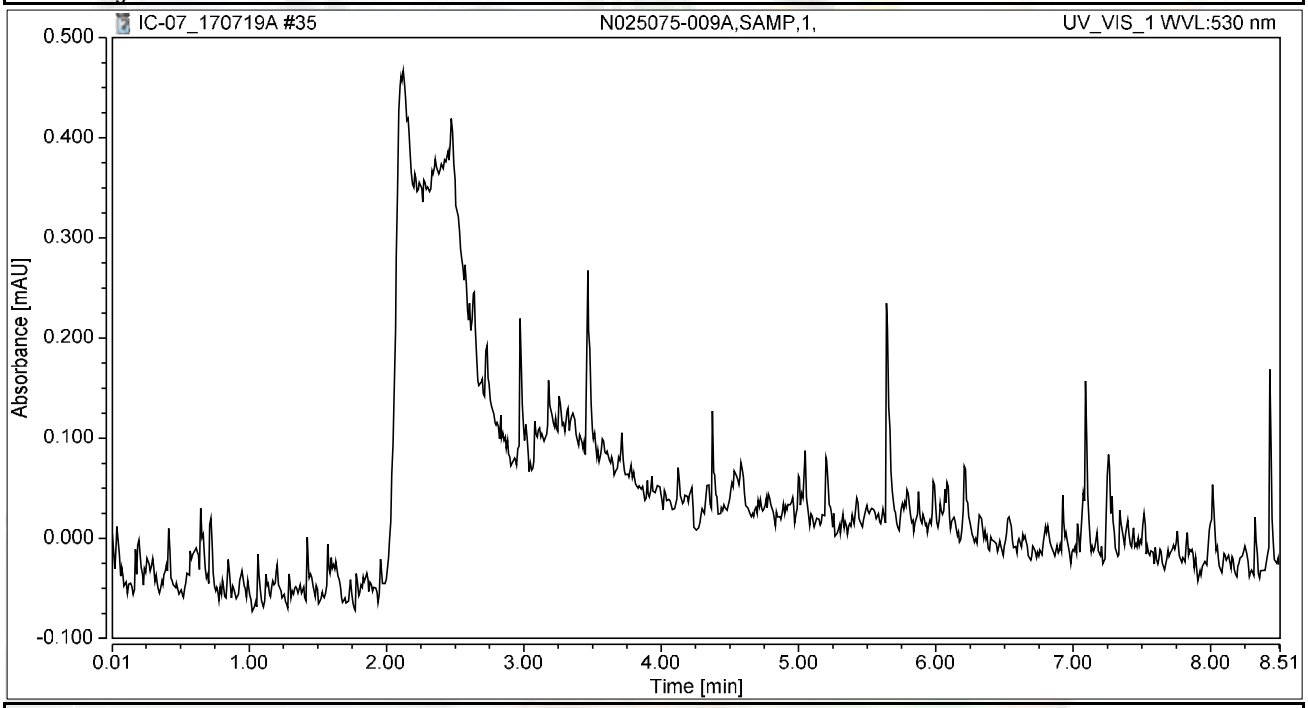
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

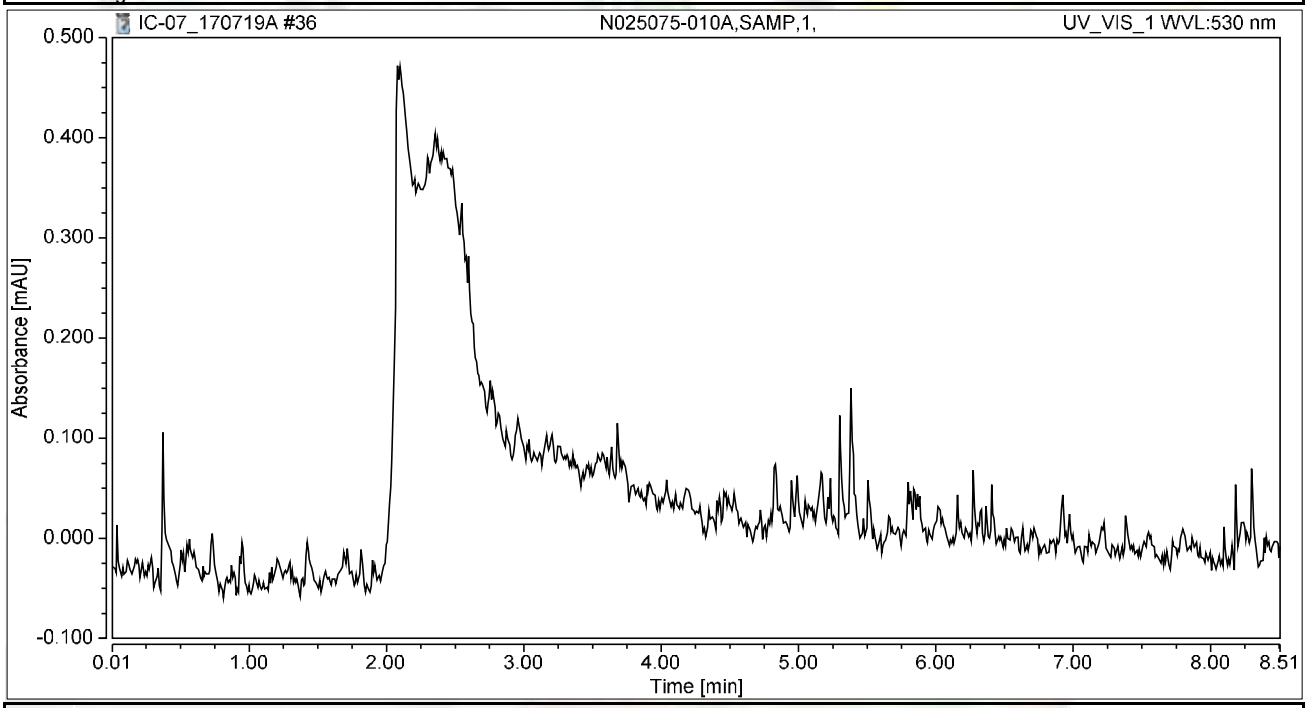
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-010A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

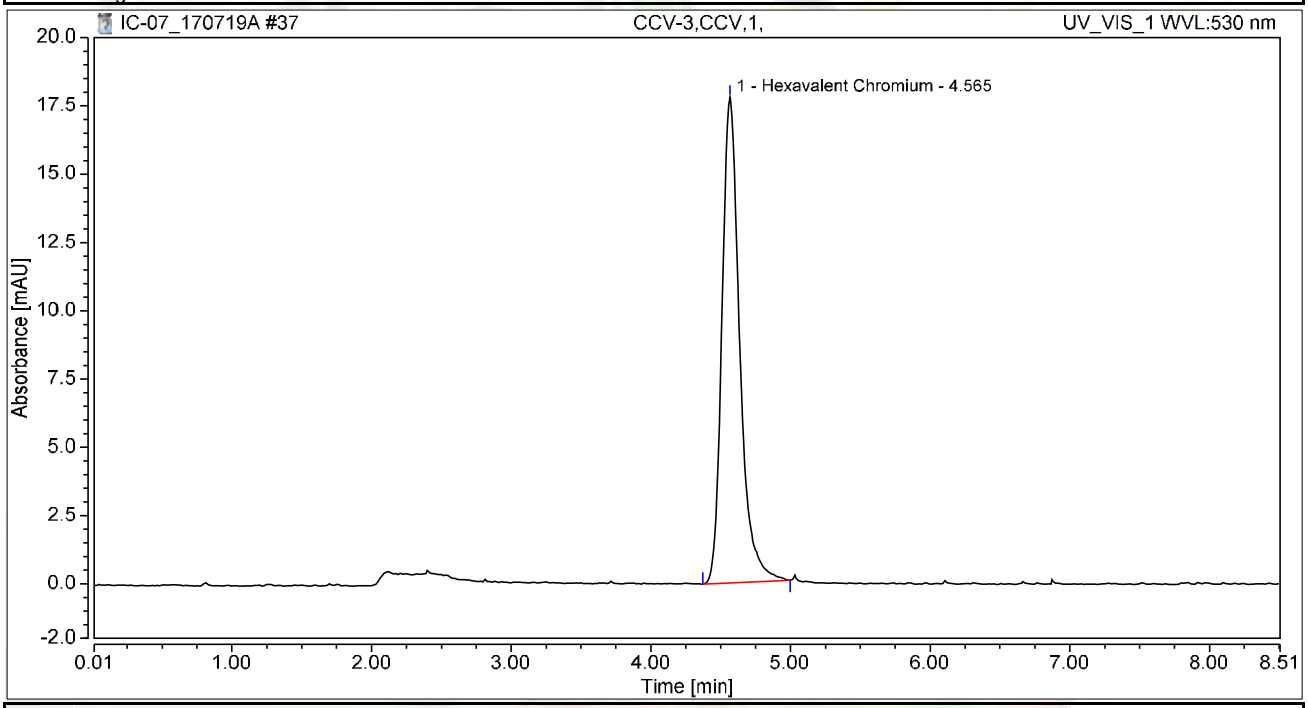
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

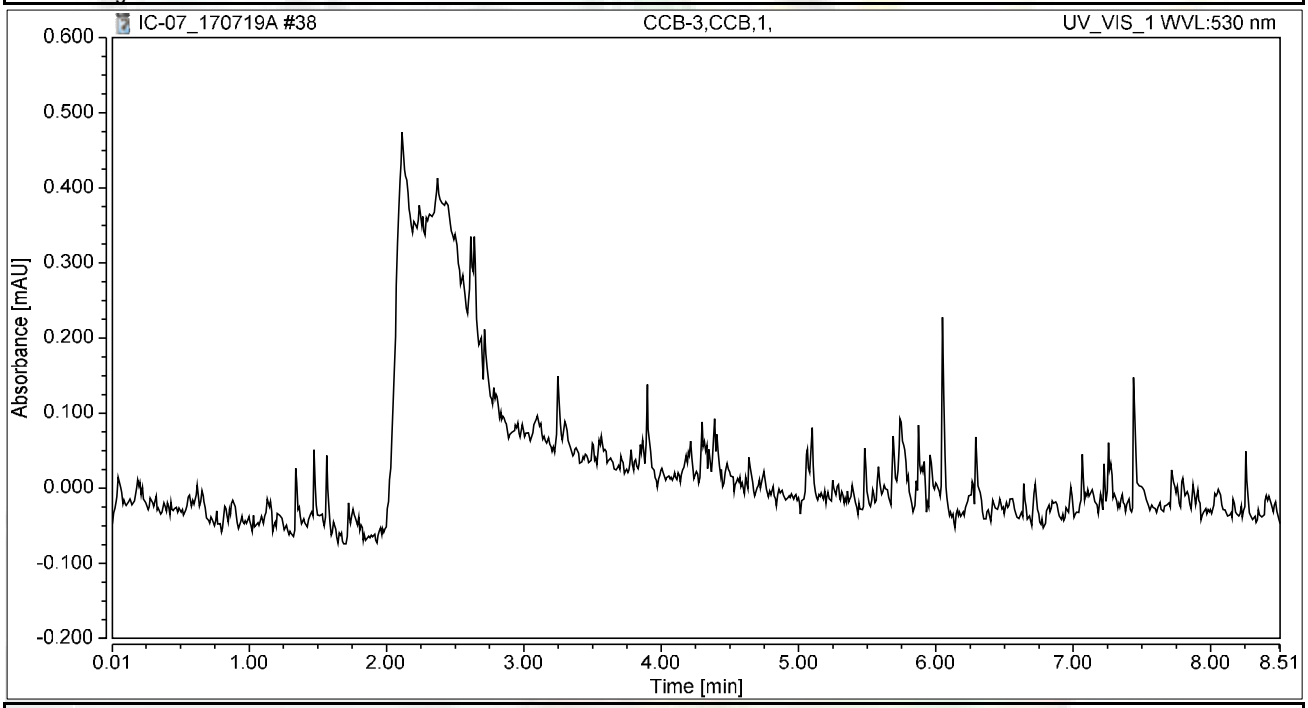
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.565	2.624	17.789	100.00	100.00	10.3166
Total:			**2.624**	**17.789**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

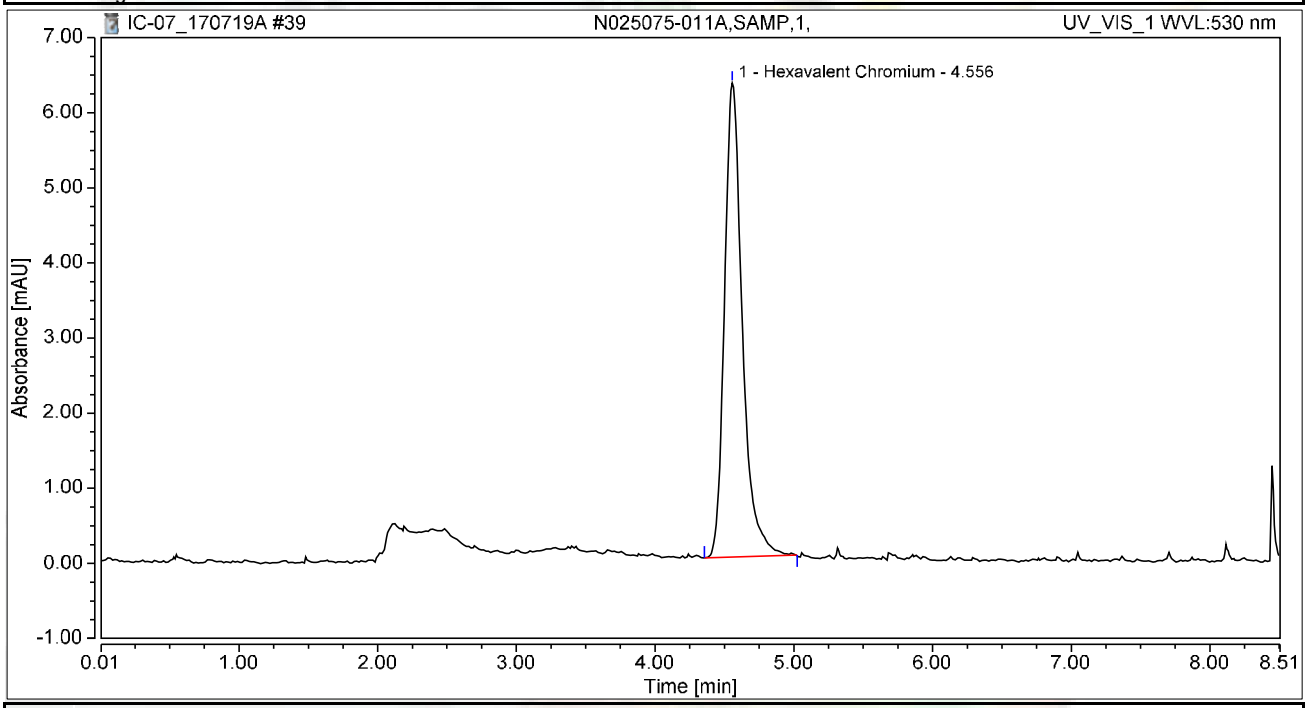
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-011A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

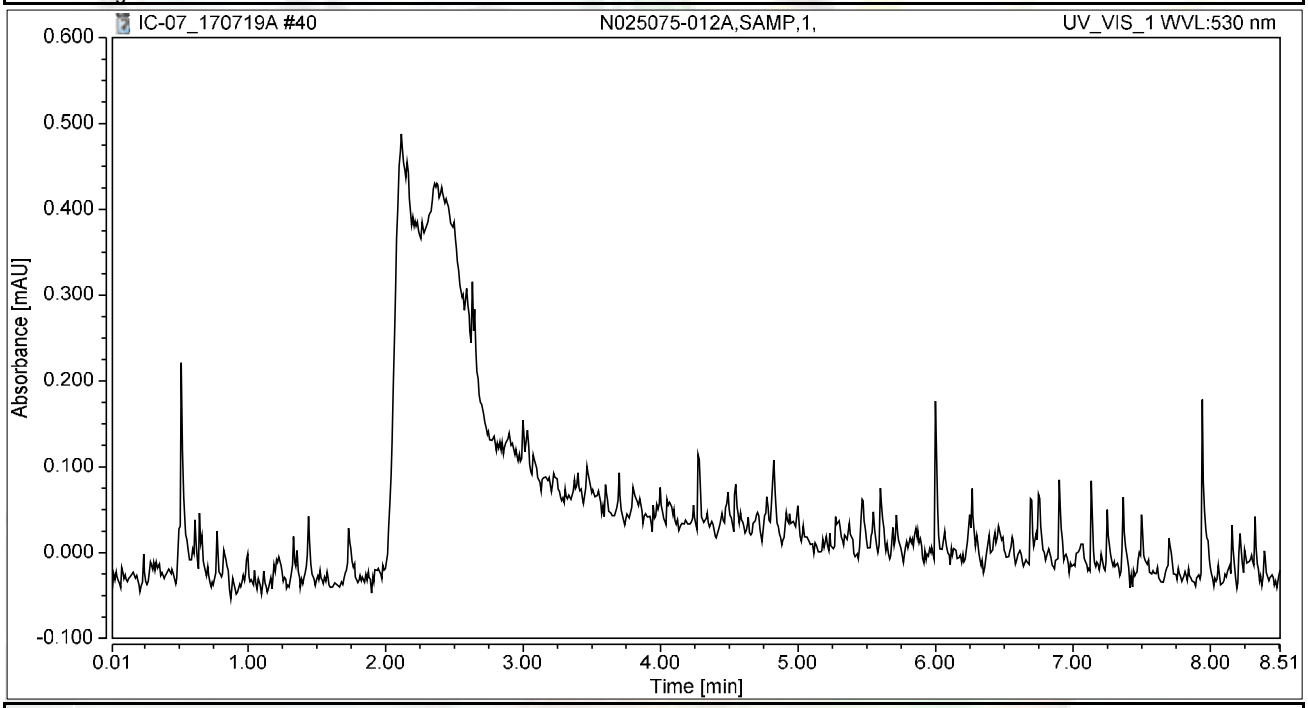
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	0.942	6.310	100.00	100.00	3.7027
Total:			**0.942**	**6.310**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-012A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 14:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

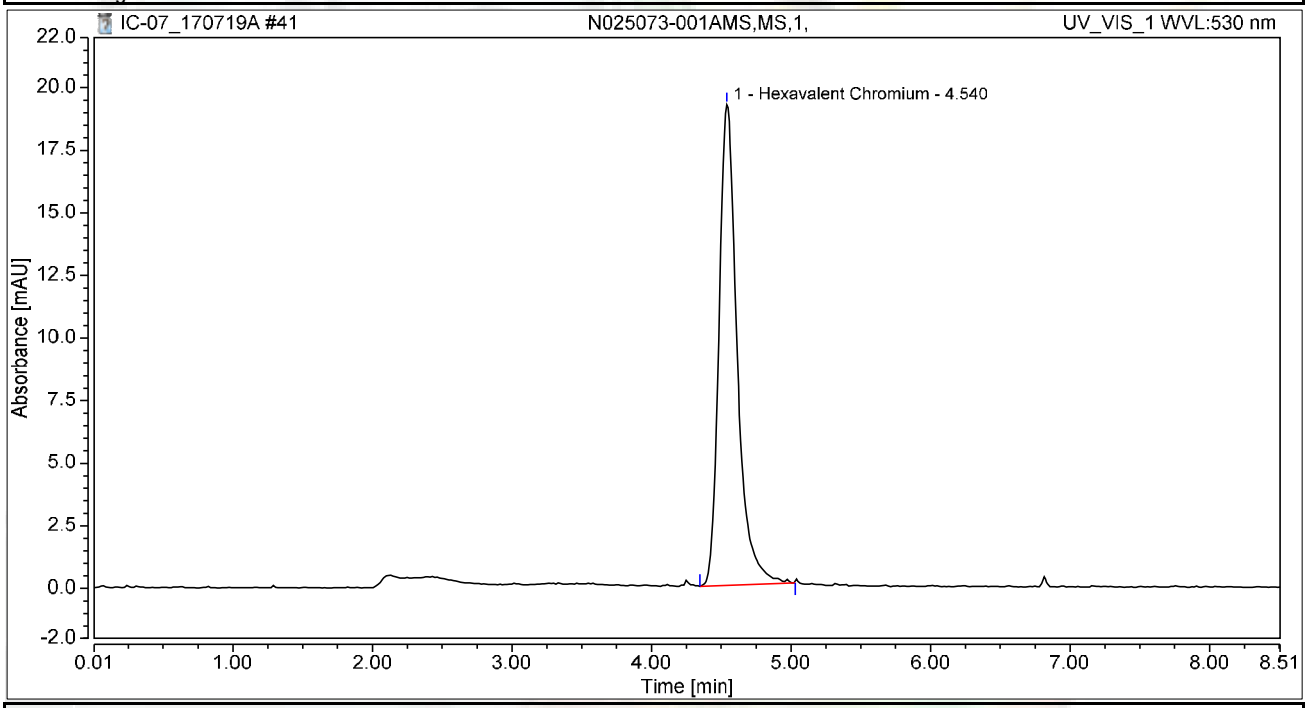
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025073-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

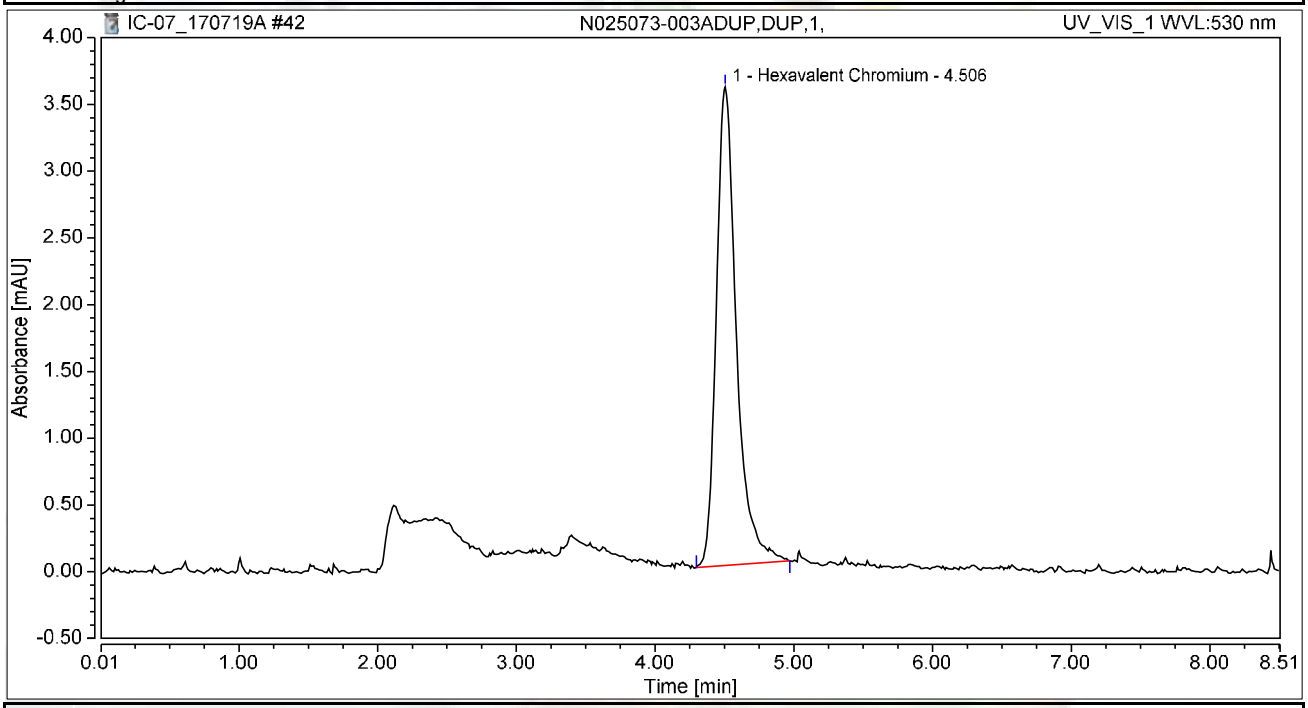
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.540	2.898	19.196	100.00	100.00	11.3920
Total:			**2.898**	**19.196**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025073-003ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 14:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

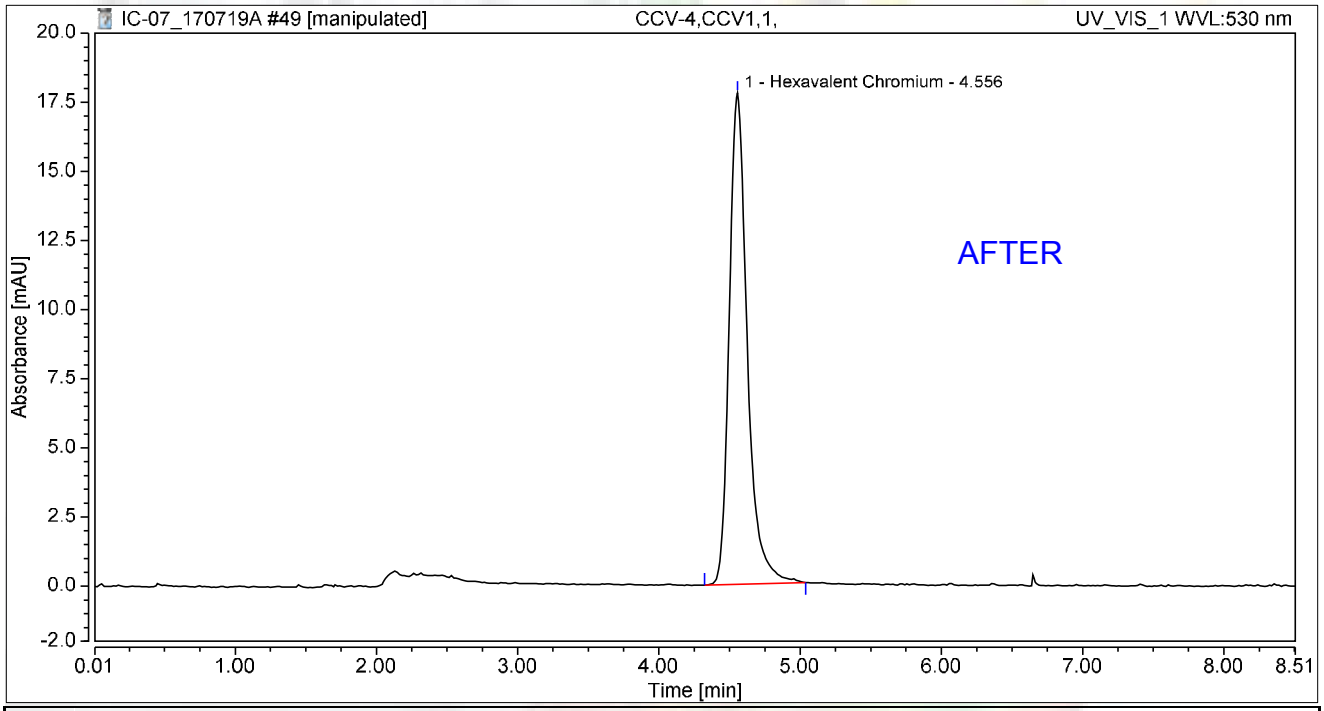
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.603	3.587	100.00	100.00	2.3708
Total:			**0.603**	**3.587**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	2.630	17.766	100.00	100.00	10.3373
Total:			**2.630**	**17.766**	**100.00**	**100.00**	

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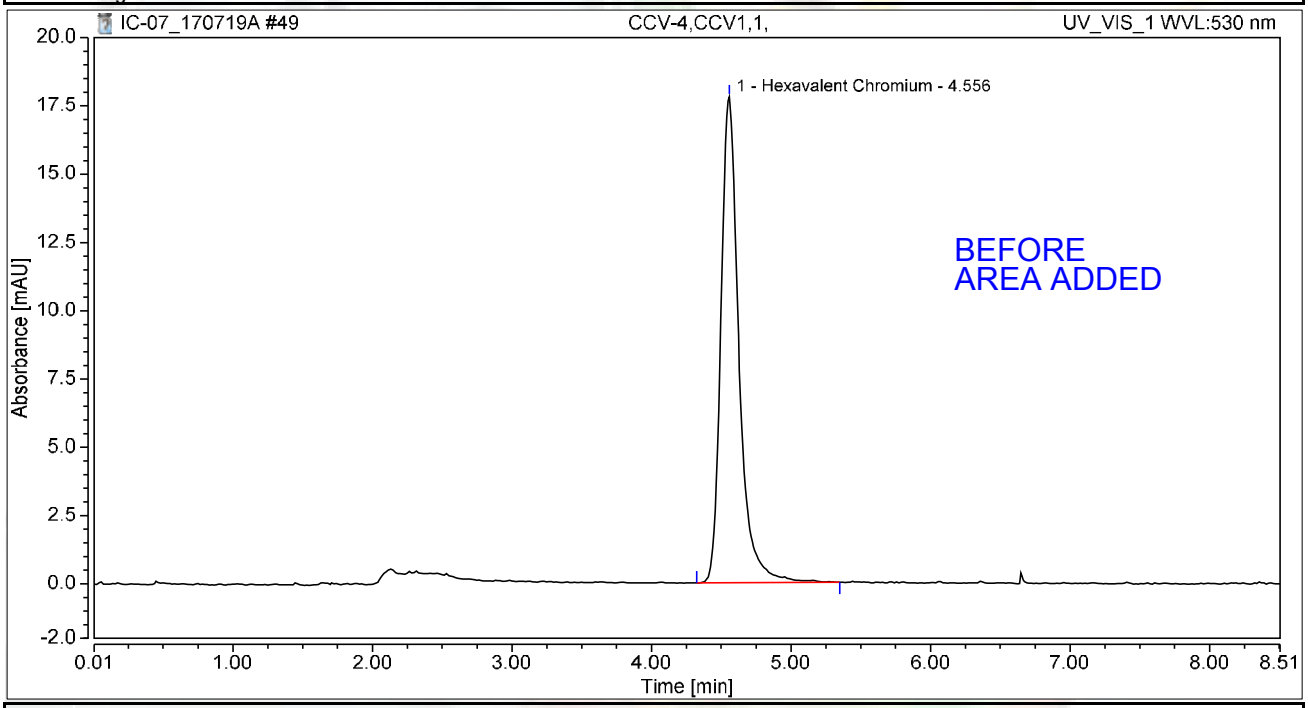
Reviewed by: Nancy 8/3/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	2.666	17.789	100.00	100.00	10.4821
Total:			**2.666**	**17.789**	**100.00**	**100.00**	

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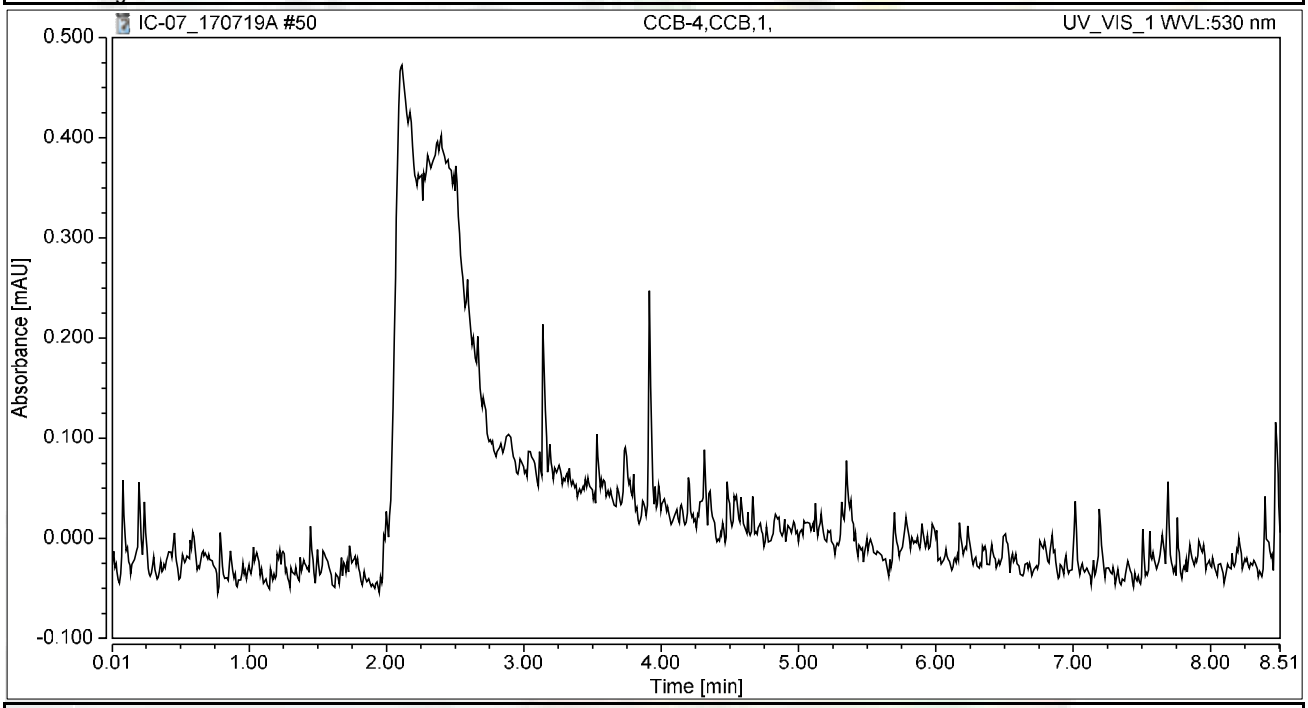
Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170710_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jul/17 16:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

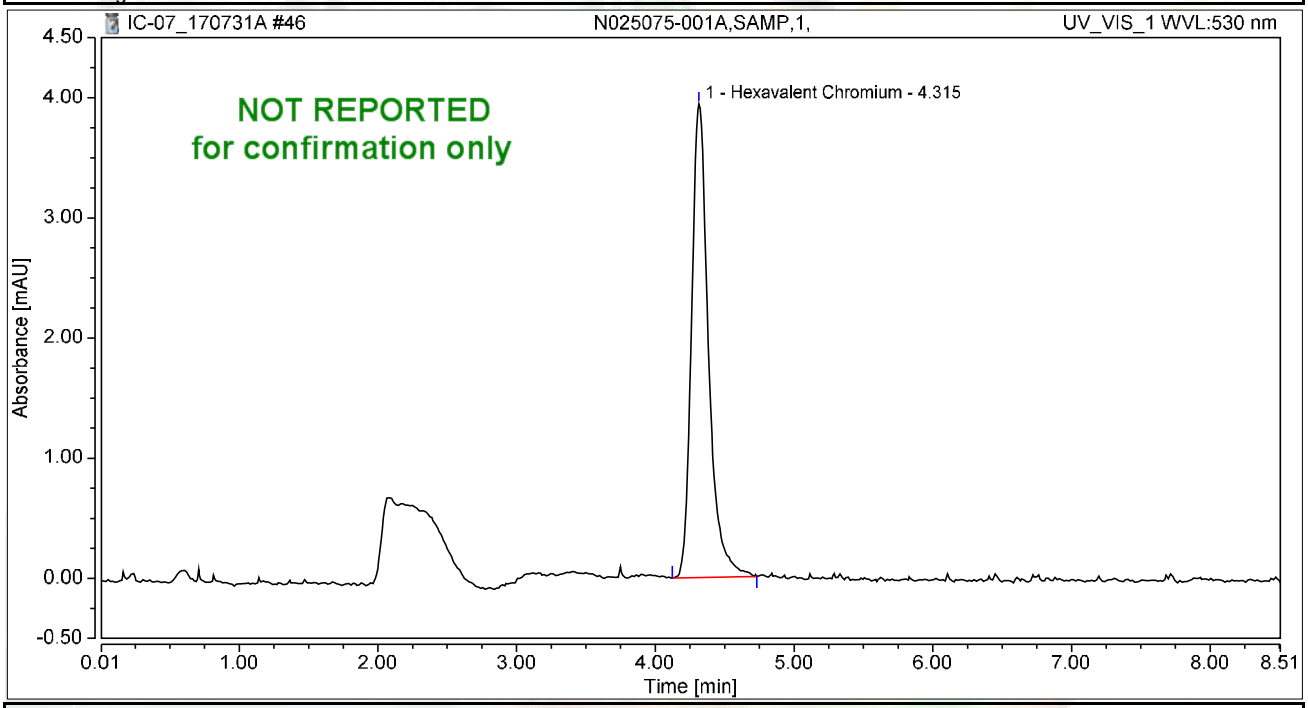
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170721_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/17 14:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

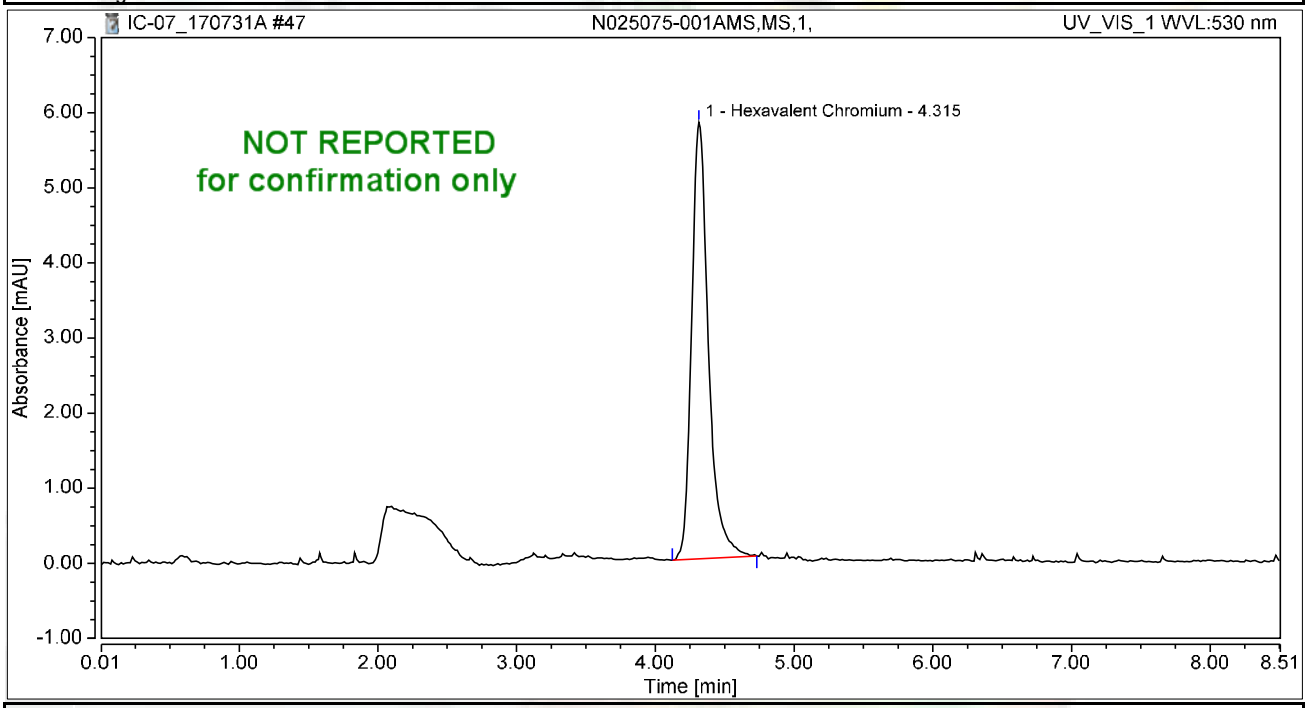
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	0.557	3.943	100.00	100.00	2.0360
Total:			**0.557**	**3.943**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025075-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170721_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jul/17 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	0.819	5.813	100.00	100.00	2.9932
Total:			**0.819**	**5.813**	**100.00**	**100.00**	

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116492 **Analyst:** LSR

ASSET #: N025072 **Date Analyzed:** 7/21/2017

Method: EPA 2320

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 7/28/2017

2nd Level Reviewer: 8/4/2017 Date: —

SAMPLE CALCULATION

Sample ID: **N025072-001C @ pH 7.69**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.80 mL)

= **0.02119 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.20) (0.02119 N) (1) * 1000

= 216.1380 mg**/L**

Reporting results in two significant figures,

= **220 mg/L** as CaCO3

Julia Ramit 7/28/2017

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02119 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (10.20 mL) (0.02119) (1) * 1000

= 216.1380 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **216.1380 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **220 mg/L**

Sukla Ramit 7/28/2017

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.56	50	0.00	0.050	MBLK
LCS-1	8.39	50	0.05	4.60	LCS
N025072-001C	7.69	50	0.00	10.20	SAMP
N025072-002C	7.84	50	0.00	6.95	SAMP
N025072-001CDUP	7.75	50	0.00	10.20	DUP
N025072-002CMS	8.02	50	0.00	11.40	MS
N025072-002CMSD	8.07	50	0.00	11.50	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.80**	ml
N H2SO4	**0.02119**	Normal
Date Analyzed:	**7/21/17**	
Time:	**9:30 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-150601A**	
Sulfuric Acid:	**R170315B**	

Julia Ramit 7/28/2017

Date Analyzed:	7/21/17		Reagents:					Standardization:					P = 0
Time Started:	9:30 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.8	mL		P = 1/2 T
				Sulfuric Acid:		R170315B							P > 1/2 T
									N H2SO4	0.02119	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.56				0.02119	0.00	0.05	0.05	1	0.00	1.06	
LCS-1	50	8.39				0.02119	0.05	4.55	4.60	1	1.06	97.46	
N025072-001C	50	7.69				0.02119	0.00	10.20	10.20	1	0.00	216.10	
N025072-002C	50	7.84				0.02119	0.00	6.95	6.95	1	0.00	147.25	
N025072-001CDU	50	7.75				0.02119	0.00	10.20	10.20	1	0.00	216.10	
N025072-002CMS	50	8.02				0.02119	0.00	11.40	11.40	1	0.00	241.53	
N025072-002CMS	50	8.07				0.02119	0.00	11.50	11.50	1	0.00	243.64	

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Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	7/21/17
Time:	9:30 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.06	1.06	1.06		P = 0
LCS-1	0.00	2.12	95.34	97.46	97.46		P < 1/2 T
N025072-001C	0.00	0.00	216.10	216.10	216.10		P = 0
N025072-002C	0.00	0.00	147.25	147.25	147.25		P = 0
N025072-001CDUP	0.00	0.00	216.10	216.10	216.10		P = 0
N025072-002CMS	0.00	0.00	241.53	241.53	241.53		P = 0
N025072-002CMSD	0.00	0.00	243.64	243.64	243.64		P = 0

Julia Ramit 7/28/2017

Matrix: H_2O

Date Extracted: 7/21/17
Time Extracted:
Extracted By: LSR

Date Analyzed: 7/21/17
Time Analyzed: 9:30
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: QIN-161205A
Hydrochloric Acid: -
Sulfuric Acid: R170315B
Sodium Bicarbonate: QIN-150601A

pH meter CALIBRATION:
SLOPE: 98.9%
pH 4 - 4.03 - QIN 170125B
7 - 7.00 - 170125C
10 - 10.00 - 170301A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50mL	10.77	1WST170721A	5 mL	0.05N	-	-	11.80	50/50	$N_{H_2SO_4} = \frac{(2.65g/L)(5mL)}{(53)(V\ titrant)}$	= 0.02118644
	#2	↓	10.76	↓	↓	↓	-	-	11.80	↓		
1)	MBLK	50mL	5.56	-	-	-	0.02119	0	0.05	50/50		
2)	LCS	↓	8.39	1WST170721B	1 mL	0.05N	↓	0.05	4.60	↓		
3)	MD25C72-001C	↓	7.69	-	-	-	↓	0	10.20	↓		
4)	2C	↓	7.84	-	-	-	↓	0	6.95	↓		
5)	1C DUP	↓	7.75	-	-	-	↓	0	10.20	↓		
6)	2C MS	↓	8.02	1WST170721B	1 mL	0.05N	↓	0	11.40	↓		
7)	2C MSD	↓	8.07	↓	↓	↓	↓	0	11.50	↓		
8)										-		
9)												
10)												
11)												
12)												
13)												
14)												
15)												
16)				$P = \frac{(V_{pH}\ 8.3)(N_{H_2SO_4})(50{,}000)}{V_{SX}}$								
17)												
18)												
19)				$T = \frac{(V_{pH}\ 4.5)(N_{H_2SO_4})(50{,}000)}{V_{SX}}$								
20)												
	MS											
	MSD											
	LCS											

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EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R116605
ASSET #: N025094 / N025072

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 7/24/2017

Method:

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: rba Date: 7/30/2017

2nd Level Reviewer: 8/4/2017 Date: ~

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N025072-001C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 5.1999 * 200

= 1039.98

Reporting result in two significant values,

Chloride, mg/L = 1000

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 8
Created: 7/10/2017 11:02:00 AM by IC-05
Last Update: 7/10/2017 1:08:19 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time
1	Std - 0	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 11:07:33 AM
2	Std - 1	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 11:32:37 AM
3	Std - 2	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 11:47:55 AM
4	Std - 3	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 12:03:13 PM
5	Std - 4	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 12:18:31 PM
6	Std - 5	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 12:33:49 PM
7	ICV,ICV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 1:08:22 PM
8	ICB,ICB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 1:23:39 PM

jrba 7/12/2017

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 8
Created: 7/10/2017 11:02:00 AM by IC-05
Last Update: 7/10/2017 1:08:19 PM by IC-05

No.	Name	Comment
1	Std - 0	BLANK
2	Std - 1	STD-LOW
3	Std - 2	STD
4	Std - 3	STD
5	Std - 4	STD
6	Std - 5	STD-HIGH
7	ICV,ICV,1	ICV
8	ICB,ICB,1	ICB

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 78
Created: 7/24/2017 8:15:02 AM by IC-05
Last Update: 7/25/2017 8:34:24 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	Anions_170710	Finished
2	Std - 1	Standard	1000.0	Anions Default	Anions_170710	Finished
3	Std - 2	Standard	1000.0	Anions Default	Anions_170710	Finished
4	Std - 3	Standard	1000.0	Anions Default	Anions_170710	Finished
5	Std - 4	Standard	1000.0	Anions Default	Anions_170710	Finished
6	Std - 5	Standard	1000.0	Anions Default	Anions_170710	Finished
7	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
12	N025094-001A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
13	N025094-002A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
14	N025094-003A,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
15	N025094-004A,SAMP,100	Unknown	1000.0	Anions Default	Anions_170710	Finished
16	N025094-001A,SAMP,100	Unknown	1000.0	Anions Default	Anions_170710	Finished
17	N025094-005A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
18	N025094-006A,SAMP,5	Unknown	1000.0	Anions Default	Anions_170710	Finished
19	N025094-007A,SAMP,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
22	N025094-009A,SAMP,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
23	N025094-010A,SAMP,2	Unknown	1000.0	Anions Default	Anions_170710	Finished
24	N025094-011A,SAMP,2	Unknown	1000.0	Anions Default	Anions_170710	Finished
25	N025094-012A,SAMP,2	Unknown	1000.0	Anions Default	Anions_170710	Finished
26	N025094-013A,SAMP,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
27	N025094-014A,SAMP,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
28	N025094-015A,SAMP,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
29	N025094-016A,SAMP,2	Unknown	1000.0	Anions Default	Anions_170710	Finished
30	N025094-013AMS,MS,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
31	N025094-013AMSD,MSD,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
32	CCV-3,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
33	CCB-3,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
34	N025094-015AMS,MS,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
35	N025094-010ADUP,DUP,2	Unknown	1000.0	Anions Default	Anions_170710	Finished
36	N025094-015A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
37	N025094-015AMS,MS,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
38	N025094-015AMSD,MSD,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
39	N025094-012A,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
40	N025094-012ADUP,DUP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
41	N025094-013A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished

jrba 7/30/2017

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 78
Created: 7/24/2017 8:15:02 AM by IC-05
Last Update: 7/25/2017 8:34:24 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	7/10/2017 11:07:33 AM	BLANK
2	Std - 1	7/10/2017 11:32:37 AM	STD-LOW
3	Std - 2	7/10/2017 11:47:55 AM	STD
4	Std - 3	7/10/2017 12:03:13 PM	STD
5	Std - 4	7/10/2017 12:18:31 PM	STD
6	Std - 5	7/10/2017 12:33:49 PM	STD-HIGH
7	BLANK,BLANK,1	7/24/2017 8:15:29 AM	BLANK,BLANK,1
8	CCV-1,CCV,1	7/24/2017 8:30:46 AM	CCV
9	CCB-1,CCB,1	7/24/2017 8:46:04 AM	CCB
10	MB-H2O,MBLK,1	7/24/2017 9:01:22 AM	METHOD BLANK
11	LCS-H2O,LCS,1	7/24/2017 9:16:41 AM	LCS
12	N025094-001A,SAMP,20	7/24/2017 10:03:01 AM	SAMP,0.5>10mL
13	N025094-002A,SAMP,20	7/24/2017 10:18:19 AM	SAMP,0.5>10mL
14	N025094-003A,SAMP,50	7/24/2017 10:33:37 AM	SAMP,0.2>10mL
15	N025094-004A,SAMP,100	7/24/2017 10:48:55 AM	SAMP,0.1>10mL
16	N025094-001A,SAMP,100	7/24/2017 11:04:13 AM	SAMP,0.1>10mL
17	N025094-005A,SAMP,20	7/24/2017 11:19:30 AM	SAMP,0.5>10mL
18	N025094-006A,SAMP,5	7/24/2017 11:57:42 AM	SAMP,2>10mL
19	N025094-007A,SAMP,1	7/24/2017 12:13:00 PM	SAMP,10mL
20	CCV-2,CCV,1	7/24/2017 12:28:18 PM	CCV
21	CCB-2,CCB,1	7/24/2017 12:43:36 PM	CCB
22	N025094-009A,SAMP,1	7/24/2017 12:58:54 PM	SAMP,10mL
23	N025094-010A,SAMP,2	7/24/2017 1:14:12 PM	SAMP,5>10mL
24	N025094-011A,SAMP,2	7/24/2017 1:29:30 PM	SAMP,5>10mL
25	N025094-012A,SAMP,2	7/24/2017 1:44:48 PM	SAMP,5>10mL
26	N025094-013A,SAMP,1	7/24/2017 2:00:06 PM	SAMP,2>10mL
27	N025094-014A,SAMP,1	7/24/2017 2:15:24 PM	SAMP,10mL
28	N025094-015A,SAMP,1	7/24/2017 2:30:41 PM	SAMP,10mL
29	N025094-016A,SAMP,2	7/24/2017 2:45:59 PM	SAMP,5>10mL
30	N025094-013AMS,MS,1	7/24/2017 3:21:26 PM	MS,10mL
31	N025094-013AMSD,MSD,1	7/24/2017 3:36:43 PM	MSD,10mL
32	CCV-3,CCV,1	7/24/2017 3:52:01 PM	CCV
33	CCB-3,CCB,1	7/24/2017 4:07:19 PM	CCB
34	N025094-015AMS,MS,1	7/24/2017 4:22:37 PM	MS,10mL
35	N025094-010ADUP,DUP,2	7/24/2017 4:37:55 PM	DUP,5>10mL
36	N025094-015A,SAMP,20	7/24/2017 5:19:00 PM	SAMP,0.5>10mL
37	N025094-015AMS,MS,20	7/24/2017 5:34:17 PM	MS,0.5>10mL
38	N025094-015AMSD,MSD,20	7/24/2017 5:49:36 PM	MSD,0.5>10mL
39	N025094-012A,SAMP,50	7/24/2017 6:07:46 PM	SAMP,0.2>10mL
40	N025094-012ADUP,DUP,50	7/24/2017 6:23:04 PM	DUP,0.2>10mL
41	N025094-013A,SAMP,20	7/24/2017 6:38:22 PM	SAMP,0.5>10mL

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 78
Created: 7/24/2017 8:15:02 AM by IC-05
Last Update: 7/25/2017 8:34:24 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N025094-013AMS,MS,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
43	N025094-005A,SAMP,500	Unknown	1000.0	Anions Default	Anions_170710	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
46	N025094-006A,SAMP,100	Unknown	1000.0	Anions Default	Anions_170710	Finished
47	N025094-006A,SAMP,500	Unknown	1000.0	Anions Default	Anions_170710	Finished
48	N025094-007A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
49	N025094-009A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
50	N025094-010A,SAMP,5	Unknown	1000.0	Anions Default	Anions_170710	Finished
51	N025094-010A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
52	N025094-011A,SAMP,5	Unknown	1000.0	Anions Default	Anions_170710	Finished
53	N025094-011A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
54	N025094-014A,SAMP,5	Unknown	1000.0	Anions Default	Anions_170710	Finished
55	N025094-014A,SAMP,20	Unknown	1000.0	Anions Default	Anions_170710	Finished
56	CCV-5,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
57	CCB-5,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
58	N025094-016A,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
59	N025072-001C,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
60	N025072-001C,SAMP,200	Unknown	1000.0	Anions Default	Anions_170710	Finished
61	N025072-002C,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
62	N025072-002C,SAMP,500	Unknown	1000.0	Anions Default	Anions_170710	Finished
63	N025094-001A,SAMP,10000	Unknown	1000.0	Anions Default	Anions_170710	Finished
64	N025094-001A,SAMP,50000	Unknown	1000.0	Anions Default	Anions_170710	Finished
65	N025094-002A,SAMP,5000	Unknown	1000.0	Anions Default	Anions_170710	Finished
66	N025094-003A,SAMP,10000	Unknown	1000.0	Anions Default	Anions_170710	Finished
67	N025094-004A,SAMP,10000	Unknown	1000.0	Anions Default	Anions_170710	Finished
68	CCV-6,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
69	CCB-6,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
70	N025094-004A,SAMP,50000	Unknown	1000.0	Anions Default	Anions_170710	Finished
71	N025080-004A,SAMP,5	Unknown	1000.0	Anions Default2	Anions_170710	Finished
72	N025080-005A,SAMP,5	Unknown	1000.0	Anions Default2	Anions_170710	Finished
73	N025080-002A,SAMP,1	Unknown	1000.0	Anions Default2	Anions_170710	Finished
74	N025080-003A,SAMP,1	Unknown	1000.0	Anions Default2	Anions_170710	Finished
75	N025080-001A,SAMP,1	Unknown	1000.0	Anions Default2	Anions_170710	Finished
76	BLANK	Unknown	1000.0	Anions Default	Anions_170710	Finished
77	CCV-7,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
78	CCB-7,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 78
Created: 7/24/2017 8:15:02 AM by IC-05
Last Update: 7/25/2017 8:34:24 AM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N025094-013AMS,MS,20	7/24/2017 6:53:40 PM	MS,0.5>10mL
43	N025094-005A,SAMP,500	7/24/2017 7:48:55 PM	SAMP,0.02>10mL
44	CCV-4,CCV,1	7/24/2017 8:04:14 PM	CCV
45	CCB-4,CCB,1	7/24/2017 8:19:31 PM	CCB
46	N025094-006A,SAMP,100	7/24/2017 8:34:50 PM	SAMP,0.1>10mL
47	N025094-006A,SAMP,500	7/24/2017 8:50:08 PM	SAMP,0.02>10mL
48	N025094-007A,SAMP,20	7/24/2017 9:05:26 PM	SAMP,0.5>10mL
49	N025094-009A,SAMP,20	7/24/2017 9:20:43 PM	SAMP,0.5>10mL
50	N025094-010A,SAMP,5	7/24/2017 9:36:01 PM	SAMP,2>10mL
51	N025094-010A,SAMP,20	7/24/2017 9:51:19 PM	SAMP,0.5>10mL
52	N025094-011A,SAMP,5	7/24/2017 10:06:37 PM	SAMP,5>10mL
53	N025094-011A,SAMP,20	7/24/2017 10:43:00 PM	SAMP,0.5>10mL
54	N025094-014A,SAMP,5	7/24/2017 10:58:18 PM	SAMP,2>10mL
55	N025094-014A,SAMP,20	7/24/2017 11:13:36 PM	SAMP,0.5>10mL
56	CCV-5,CCV,1	7/24/2017 11:28:54 PM	CCV
57	CCB-5,CCB,1	7/24/2017 11:44:12 PM	CCB
58	N025094-016A,SAMP,50	7/24/2017 11:59:30 PM	SAMP,0.2>10mL
59	N025072-001C,SAMP,50	7/25/2017 12:14:47 AM	SAMP,0.2>10mL
60	N025072-001C,SAMP,200	7/25/2017 12:30:05 AM	SAMP,0.05>10mL
61	N025072-002C,SAMP,50	7/25/2017 12:45:23 AM	SAMP,0.2>10mL
62	N025072-002C,SAMP,500	7/25/2017 1:00:41 AM	SAMP,0.02>10mL
63	N025094-001A,SAMP,10000	7/25/2017 1:15:59 AM	SAMP,0.001>10mL
64	N025094-001A,SAMP,50000	7/25/2017 1:31:17 AM	SAMP,0.0002>10mL
65	N025094-002A,SAMP,5000	7/25/2017 1:46:35 AM	SAMP,0.002>10mL
66	N025094-003A,SAMP,10000	7/25/2017 2:01:53 AM	SAMP,0.001>10mL
67	N025094-004A,SAMP,10000	7/25/2017 2:17:10 AM	SAMP,0.001>10mL
68	CCV-6,CCV,1	7/25/2017 2:32:28 AM	CCV
69	CCB-6,CCB,1	7/25/2017 2:47:46 AM	CCB
70	N025094-004A,SAMP,50000	7/25/2017 3:03:04 AM	SAMP,0.0002>10mL
71	N025080-004A,SAMP,5	7/25/2017 3:18:22 AM	SAMP,2>10mL
72	N025080-005A,SAMP,5	7/25/2017 3:40:39 AM	SAMP,2>10mL
73	N025080-002A,SAMP,1	7/25/2017 4:02:57 AM	SAMP,10mL
74	N025080-003A,SAMP,1	7/25/2017 4:25:15 AM	SAMP,10mL
75	N025080-001A,SAMP,1	7/25/2017 4:47:33 AM	SAMP,10mL
76	BLANK	7/25/2017 5:09:51 AM	BLANK
77	CCV-7,CCV,1	7/25/2017 5:25:09 AM	CCV
78	CCB-7,CCB,1	7/25/2017 5:40:27 AM	CCB

INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 7/10/2017

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0749	0.1479	0.3046	0.7669	1.5836	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST160817B

Calibration Acceptance Criteria: > 0.995 Correlation

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

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 7/10/2017

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0574	0.2231	0.4516	1.1686	2.3701	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST160817G

Calibration Acceptance Criteria: > 0.995 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **ICV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2705541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.056	0.50	2.000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.016	0.50	2.000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.017	0.50	2.000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.010	0.50	2.000	0	100	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705559**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.020	0.50	2.000	0	101	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/25/2017**	SeqNo: **2705573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.999	0.50	2.000	0	99.9	90	110				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/25/2017**	SeqNo: **2705581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.003	0.50	2.000	0	100	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **ICV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2705583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.830	0.50	4.000	0	95.8	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.933	0.50	4.000	0	98.3	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.959	0.50	4.000	0	99.0	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.944	0.50	4.000	0	98.6	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.868	0.50	4.000	0	96.7	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.997	0.50	4.000	0	99.9	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/25/2017**	SeqNo: **2705617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.029	0.50	4.000	0	101	90	110				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCV**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/25/2017**	SeqNo: **2705619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.944	0.50	4.000	0	98.6	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **ICB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2705542**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705544**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.114	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.095	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.107	0.50									

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	**CCB-5**	SampType:	**CCB**	TestCode:	**300_W_CLP**	Units:	**mg/L**	Prep Date:		RunNo:	**116605**
Client ID:	**CCB**	Batch ID:	**R116605**	TestNo:	**EPA 300.0**			Analysis Date:	**7/24/2017**	SeqNo:	**2705566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.085	0.50									

Sample ID	**CCB-6**	SampType:	**CCB**	TestCode:	**300_W_CLP**	Units:	**mg/L**	Prep Date:		RunNo:	**116605**
Client ID:	**CCB**	Batch ID:	**R116605**	TestNo:	**EPA 300.0**			Analysis Date:	**7/25/2017**	SeqNo:	**2705574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.090	0.50									

Sample ID	**CCB-7**	SampType:	**CCB**	TestCode:	**300_W_CLP**	Units:	**mg/L**	Prep Date:		RunNo:	**116605**
Client ID:	**CCB**	Batch ID:	**R116605**	TestNo:	**EPA 300.0**			Analysis Date:	**7/25/2017**	SeqNo:	**2705582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.158	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	ICB	SampType:	ICB	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	ICB	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/10/2017	SeqNo:	2705584

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

Sample ID	CCB-1	SampType:	CCB	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	CCB	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705586

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

Sample ID	CCB-2	SampType:	CCB	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	CCB	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705590

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.133	0.50									

Sample ID	CCB-3	SampType:	CCB	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	CCB	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705592

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

Sample ID	CCB-4	SampType:	CCB	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116605
Client ID:	CCB	Batch ID:	R116605	TestNo:	EPA 300.0			Analysis Date:	7/24/2017	SeqNo:	2705602

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

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/24/2017**	SeqNo: **2705610**

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

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/25/2017**	SeqNo: **2705618**

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

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116605**
Client ID: **CCB**	Batch ID: **R116605**	TestNo: **EPA 300.0**		Analysis Date: **7/25/2017**	SeqNo: **2705620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.229	0.50									

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 7/24/2017

Sample Name		Retention Time	Evaluation
CCV-1	Chloride	3.987	
CCV-2	Chloride	3.987	
CCV-3	Chloride	3.987	
CCV-4	Chloride	3.983	
CCV-5	Chloride	3.994	
CCV-6	Chloride	3.987	
CCV-7	Chloride	3.987	
	Average	3.987	
	Applied RT Window	3.787 - 4.187	
MB-R116605_CL	Chloride	3.974	PASS
LCS-R116605_CL	Chloride	3.987	PASS
N025094-015AMS	Chloride	3.987	PASS
N025094-015AMSD	Chloride	3.990	PASS
N025094-012ADUP	Chloride	3.987	PASS
N025094-013AMS	Chloride	3.987	PASS
N025072-001C	Chloride	3.990	PASS
N025072-002C	Chloride	3.997	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 7/24/2017

Sample Name		Retention Time	Evaluation
CCV-1	Sulfate	8.674	
CCV-2	Sulfate	8.670	
CCV-3	Sulfate	8.667	
CCV-4	Sulfate	8.650	
CCV-5	Sulfate	8.677	
CCV-6	Sulfate	8.657	
CCV-7	Sulfate	8.647	
	Average	8.663	
	Applied RT Window	8.463 - 8.863	
MB-R116605_SO4	Sulfate	N.A.	N.A.
LCS-R116605_SO4	Sulfate	8.683	PASS
N025094-015AMS	Sulfate	8.667	PASS
N025094-015AMSD	Sulfate	8.670	PASS
N025094-012ADUP	Sulfate	8.667	PASS
N025094-013AMS	Sulfate	8.650	PASS
N025072-001C	Sulfate	8.660	PASS
N025072-002C	Sulfate	8.667	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

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

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2017

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/26/2017
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.024	0.10	0.0906	**91**
Chloride	**0.0091**	0.020	0.130	0.50	0.5635	**113**
Nitrite	**0.0030**	0.010	0.023	0.05	0.0581	**116**
Bromide	**0.0196**	0.040	0.048	0.20	0.194	**97**
Nitrate	**0.0050**	0.010	0.023	0.05	0.0599	**120**
Phosphate	**0.0135**	0.030	0.043	0.10	0.1111	**111**
Sulfate	**0.0229**	0.050	0.195	0.50	0.6178	**124**

SM 3500-Cr B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116785 **Analyst:** QBM

ASSET #: N025072 **Date Analyzed:** 8/1/2017

Method: 3500

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer 8/2/2017 Date:

2nd Level Reviewer 8/4/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 3500-Cr B
TEST NAME: Hexavalent Chromium by Colorimetric Method
MATRIX: ~~Water~~ Groundwater

FORMULA:

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

Hexavalent Chromium, ug/L = A * DF

Where:

A= ug/L, UV-VIS Hexavalent Chromium calculated concentration

DF= dilution factor

For **N025072-002A,** concentration in ug/L is calculated as follows:

Hexavalent Chromium, ug/L = 111.002 * 5

= 555.01 ug/L

Reporting result in 2 significant figures,

Hexavalent Chromium, ug/L = 560

INITIAL CALIBRATION DATA SUMMARY

THERMO SPECTRONIC ~ VISION32 SOFTWARE V1.25

Operator Name	(None Entered)		
Department	(None Entered)	Date of Report	8/1/2017
Organisation	(None Entered)	Time of Report	8:32:24
Information	(None Entered)		

Calibration - EPA 3500_CRB_08012017.fqc

Operator Name	(None Entered)
Instrument ID	152119

Calibration Method - EPA 3500_CRB_08012017.fqc

Description	Hexavalent Chromium by EPA 3500 (Colorimetric)		
Operator Name	QBM		
Quant Mode	Single Lambda	Standards	5
Lambda 1	540.0 nm	Replicates	1
Lambda 2	Off	Initial Curve Fit	Linear
Lambda 3	Off	Conc. Units	ug/L
Integ. Time	00:00:01	Conc. Dec. Places	3
Lamp Change	325.0 nm	Flier Detection	Off
Bandwidth	2.0 nm	Valid Until	8/1/2018
Method Status	Unlocked		

Standards Table - EPA 3500_CRB_08012017.fqc

Standard	Conc.	Use	540.0nm	Errors
Standard01	10.000	Yes	0.009	None
Standard02	50.000	Yes	0.043	None
Standard03	100.000	Yes	0.084	None
Standard04	250.000	Yes	0.211	None
Standard05	500.000	Yes	0.413	None

All calculations have been performed to double precision as defined by ANSI/IEEE STD 754-1985 but have been rounded for display purposes.

Errors Key

None	: No Errors Detected
I	: Invalid Data

Calibration Line / Curve Statistics

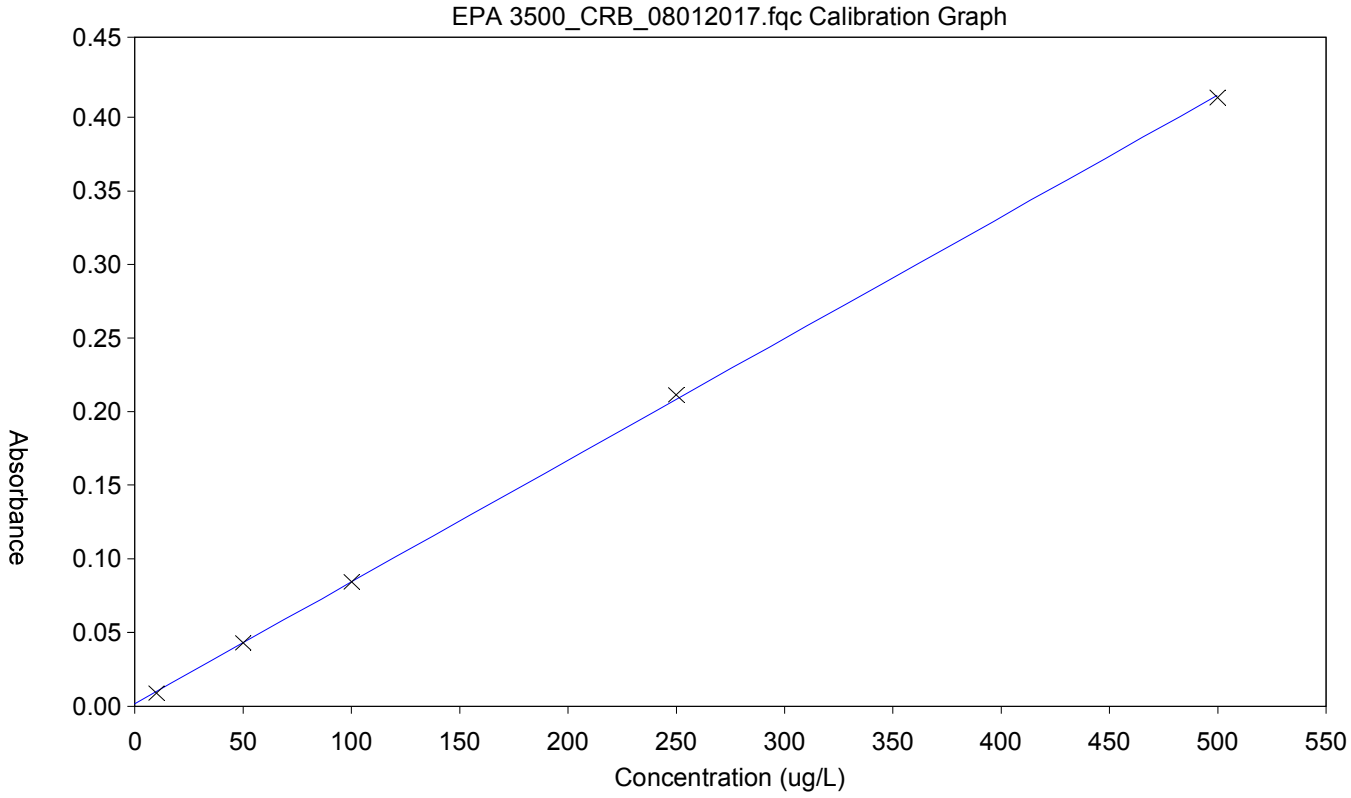
Equation	A = 0.0008 x Conc + 0.0017
Selected Fit	Linear
Coefficient	0.999882

THERMO SPECTRONIC ~ VISION32 SOFTWARE V1.25

Operator Name	(None Entered)		
Department	(None Entered)	Date of Report	8/1/2017
Organisation	(None Entered)	Time of Report	8:32:24
Information	(None Entered)		

Sum of Residuals (<0.0001)

Calibration Graph



ICAL/CCV: IWST170620A
ICV/LCS/MS/MSD: ISST170620B
10%H2SO4: R160920A
1,5-Diphenylcarbazide Solution: R170801D

8/2/2017

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **3500_CrBPG**	Units: **µg/L**	Prep Date:	RunNo: **116785**
Client ID: **CCV**	Batch ID: **R116785**	TestNo: **SM 3500-Cr B**		Analysis Date: **8/1/2017**	SeqNo: **2717120**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	100.428	10	100.0	0	100	90	110				

Sample ID **ICV**	SampType: **ICV**	TestCode: **3500_CrBPG**	Units: **µg/L**	Prep Date:	RunNo: **116785**
Client ID: **ICV**	Batch ID: **R116785**	TestNo: **SM 3500-Cr B**		Analysis Date: **8/1/2017**	SeqNo: **2717122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	255.107	10	250.0	0	102	90	110				

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 3500_CrBPGE

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **3500_CrBPG**	Units: **µg/L**	Prep Date:	RunNo: **116785**
Client ID: **CCB**	Batch ID: **R116785**	TestNo: **SM 3500-Cr B**		Analysis Date: **8/1/2017**	SeqNo: **2717119**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	-0.557	10									

Sample ID **ICB**	SampType: **ICB**	TestCode: **3500_CrBPG**	Units: **µg/L**	Prep Date:	RunNo: **116785**
Client ID: **ICB**	Batch ID: **R116785**	TestNo: **SM 3500-Cr B**		Analysis Date: **8/1/2017**	SeqNo: **2717121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	-1.225	10									

Qualifiers:

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

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Calibration Method - EPA 3500_CRB_08012017.fqc 8/2/2017 09:26

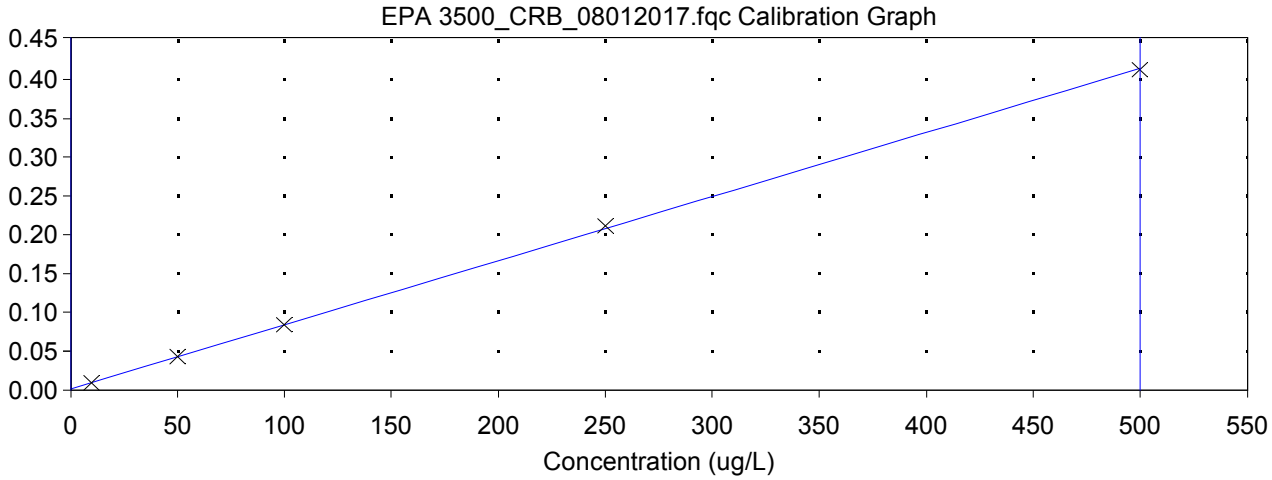
Description	Hexavalent Chromium by EPA 3500 (Colorimetric)		
Operator Name	QBM		
Quant Mode	Single Lambda	Standards	5
Lambda 1	540.0 nm	Replicates	1
Lambda 2	Off	Initial Curve Fit	Linear
Lambda 3	Off	Conc. Units	ug/L
Integ. Time	00:00:01	Conc. Dec. Places	3
Lamp Change	325.0 nm	Flier Detection	Off
Bandwidth	2.0 nm	Valid Until	8/1/2018
Method Status	Unlocked		

Calibration Line / Curve Statistics

Equation	A = 0.0008 x Conc + 0.0017
Selected Fit	Linear
Coefficient	0.999882
Sum of Residuals	(<0.0001)

Standard	Conc.	Use	540.0nm	Errors
Standard01	10.000	Yes	0.009	None
Standard02	50.000	Yes	0.043	None
Standard03	100.000	Yes	0.084	None
Standard04	250.000	Yes	0.211	None
Standard05	500.000	Yes	0.413	None

All calculations have been performed to double precision as defined by ANSI/IEEE STD 754-1985 but have been rounded for display purposes.



Batch : Hexavalent Chromium_08012017001.qre

	Sample	540.0nm	Conc.	Errors
1	,ICV,ICV,1,	0.212	255.107	None
2	,ICB,ICB,1,	0.001	-1.225	I
3	,MB-,MBLK,1,	0.001	-1.321	I
4	,LCS-,LCS,1,	0.084	99.868	None
5	,N025072-002A,SAMP,5,	0.093	111.002	None
6	,N025072-002ADUP,DUP,5,	0.093	111.087	None
7	,N025072-002AMS,MS,5,	0.175	210.108	None
8	,N025072-002AMSD,MSD,5,	0.175	210.198	None
9	,CCV-1,CCV,1,	0.085	100.428	None
10	,CCB-1,CCB,1,	0.001	-0.557	I

All calculations have been performed to double precision as defined by ANSI/IEEE STD 754-1985 but have been rounded for display purposes.

ICAL/CCV: IWST170620A
ICV/LCS/MS/MSD: ISST170620B
10%H2SO4: R160920A
1,5-Diphenylcarbazide Solution: R170801D

8/2/2017

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116796 **Analyst:** REB

ASSET #: N025072 **Date Analyzed:** 8/1/2017

Method: 4500_NO3

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer RB 08/02/17 Date: —

2nd Level Reviewer 8/4/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N025072-002D** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.5927*5

= 2.9635 mg/L

Reporting results in two significant figures:
Nitrate/Nitrite-N, mg/L = 3.0

RB 08/02/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

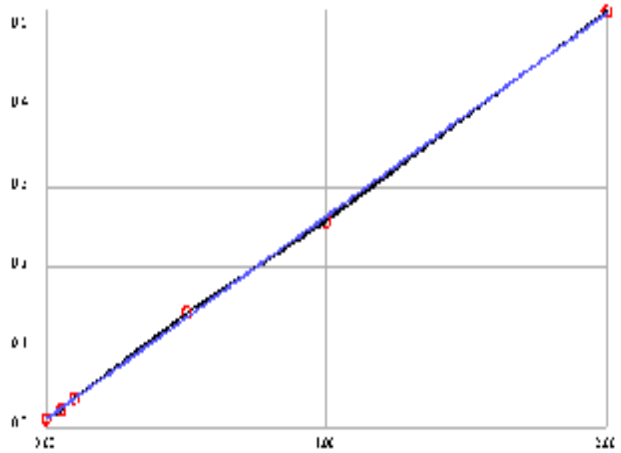
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2533x + 0.011
Correlation	.999829

Calibrant	Energy	Set	Conc
1	0.0109	0.0000	-0.0003
2	0.0226	0.0500	0.0459
3	0.0363	0.1000	0.1000
4	0.1430	0.5000	0.5213
5	0.2584	1.0000	0.9769
6	0.5191	2.0000	2.0063

Notes:

2% CuSO4- R170731B
R1 Buffer- R170731C
R2 Coloring reagent- R170731C

STD 1°- ISST160817E
STD 2°- ISST170419E

08/02/17

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **116796**
Client ID: **ICV**	Batch ID: **R116796**	TestNo: **SM4500-NO3**		Analysis Date: **8/1/2017**	SeqNo: **2717866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.500	0.050	0.5000	0	99.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **116796**
Client ID: **CCV**	Batch ID: **R116796**	TestNo: **SM4500-NO3**		Analysis Date: **8/1/2017**	SeqNo: **2717875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.532	0.050	0.5000	0	106	90	110				

not used

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **116796**
Client ID: **CCV**	Batch ID: **R116796**	TestNo: **SM4500-NO3**		Analysis Date: **8/1/2017**	SeqNo: **2717877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.526	0.050	0.5000	0	105	90	110				

RJB 08/02/17

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **116796**
Client ID: **ICB**	Batch ID: **R116796**	TestNo: **SM4500-NO3**		Analysis Date: **8/1/2017**	SeqNo: **2717867**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **116796**
Client ID: **CCB**	Batch ID: **R116796**	TestNo: **SM4500-NO3**		Analysis Date: **8/1/2017**	SeqNo: **2717878**

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

RJB 08/02/17

Qualifiers:

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

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 08-01-2017 15:12
Time end: 08-01-2017 16:43

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:24:54	0.0052		0.0123
2	<BLANK>	16:25:48	-0.0007		0.0108
3	<CAL1>	16:26:50	-0.0003	[0]	0.0109
4	<CAL2>	16:27:31	0.0459	[0.05]	0.0226
5	<CAL3>	16:28:21	0.1000	[0.1]	0.0363
6	<CAL4>	16:29:03	0.5213	[0.5]	0.1430
7	<CAL5>	16:29:52	0.9769	[1]	0.2584
8	<CAL6>	16:30:34	2.0063	[2]	0.5191
9	,BLANK,BLANK,1,	16:31:17	0.0340		0.0196
10	,ICV,ICV,1,	16:32:06	0.4996		0.1375
11	,ICB,ICB,1,	16:32:48	0.0178		0.0155
12	,MB-H2O,MBLK,1,	16:33:37	0.0005		0.0111
13	,LCS-H2O,LCS,1,	16:34:19	0.4853		0.1339
14	,N025072-001D,SAMP,1,	16:35:02	0.0131		0.0143
15	,N025072-001DDUP,DUP,1,	16:35:50	0.0087		0.0132
16	,N025072-001DMS,MS,1,	16:36:34	0.5296		0.1451
17	,N025072-001DMSD,MSD,1,	16:37:17	0.5694		0.1552
18	,N025072-002D,SAMP,5,	16:38:05	0.5927		0.1611
19	,BLANK,	16:38:48	0.0178		0.0155
20	,CCV-1,CCV,1,	16:39:36	0.5323		0.1458
21	,CCV-1,CCV,1, not used	16:40:19	0.5264		0.1443
22	,CCB-1,CCB,1,	16:41:01	0.0008		0.0112

RB 08/02/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 08/01/17
Time Analyzed: 03:12 PM
Analyzed By: REB

Reagent ID #
Ammonium Chloride reagent/Buffer: R170731C
Color reagent: R170731D
2% Copper Sulfate: R170731B
Ammonium Hydroxide: CINV-170424A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)
1)	N025072-001D		7.64						
2)	N025072-002D		8.63						
3)									
4)									
5)									
6)									
7)									
8)									
9)									
10)									
11)									
12)									
13)									
14)									
15)									
16)									
17)									
18)									
19)									
20)									
21)									
22)									
23)									

Advanced Technology Laboratories, Inc.
Book # 1

RB 08/02/17

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 62950
ASSET #: N025075

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 7/21/2017

Method:

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

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

Comments:

%Rec of Fe in N025046-002B MS failed, low bias. However, LCS passed criteria.

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

1st Level Reviewer 8/4/2017 Date: ____

2nd Level Reviewer 8/4/2017 Date: ____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 62950
ASSET #: N025075

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 7/25/2017

Method:

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

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

Comments: Na only

%Rec of Na in N025072-001B MS/MSD/PS. However, LCS passed criteria.
~~%Rec of Al,Ca,Fe and Mg in ICSA/ICSAB-1 and ICSA/ICSAB-2 failed. However, these analytes are not reported.~~

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

1st Level Reviewer 8/4/2017 Date: _____

2nd Level Reviewer 8/4/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

where:

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

For Sample **N025072-001B** , the concentration ir ug/L is calculated as follows:

Sodium , ug/L = 28.4986 * 25 * (25/25) * 1000

Sodium , ug/L = 712465

Reporting results in two significant figures,

Sodium , ug/L = 710000

% RSD SUMMARY

RSD SUMMARY: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment	
CalBlk	IBLK	1	Ca	0	16.67	15	<PQL	
Standard1	ICAL	1	Ca	0.2	1.64	15	PASS	
Standard2	ICAL	1	Ca	1	1.74	15	PASS	
Standard3	ICAL	1	Ca	2	1.44	15	PASS	
Standard4	ICAL	1	Ca	5	1.47	15	PASS	
Standard5	ICAL	1	Ca	7.5	0.57	15	PASS	
Standard6	ICAL	1	Ca	10	0.23	15	PASS	
Standard7	ICAL	1	Ca	20	0.62	15	PASS	
ICV	ICV	1	Ca	10.075	0.75	15	PASS	
ICB	ICB	1	Ca	0.0028	812.82	15	<PQL	
LLICV	CCV1	1	Ca	0.26	10.49	20	PASS	
ICSA1	ICSA	1	Ca	520.11	0.17	15	PASS	
ICSAB1	ICSAB	1	Ca	532.85	0.27	15	PASS	
CCV1	CCV	1	Ca	10.12	0.75	15	PASS	
CCB1	CCB	1	Ca	0.015	270.41	15	<PQL	
CCV2	CCV	1	Ca	10.032	0.82	15	PASS	
CCB2	CCB	1	Ca	55.46	173.69	15	NR!	
CCB2	CCB	1	Ca	0.0083	374.8	15	<PQL	
CCV3	CCV	1	Ca	9.77	0.86	15	PASS	
CCB3	CCB	1	Ca	0.019	66.88	15	<PQL	
CCV4	CCV	1	Ca	9.76	0.42	15	PASS	
CCB4	CCB	1	Ca	0.032	57.67	15	<PQL	
LLCCV1	CCV2	1	Ca	0.22	22.31	20	<PQL	
ICSA2	ICSA	1	Ca	507.46	0.79	15	PASS	
ICSAB2	ICSAB	1	Ca	517.78	1.57	15	PASS	
CCV5	CCV	1	Ca	9.64	1.053	15	PASS	
CCB5	CCB	1	Ca	0.0055	246.13	15	<PQL	
CCV6	CCV	1	Ca	9.66	0.41	15	PASS	
CCB6	CCB	1	Ca	907.8	21.75	15	NR!	
CCB6	CCB	1	Ca	0.0094	313	15	<PQL	
MB-62950	MBLK	1	Ca	0.033	60.54	15	<PQL	
LCS-62950	LCS	1	Ca	9.16	0.57	15	PASS	
N025072-~~001B~~ -002B	SAMP	1	Ca	107.55	0.24	15	PASS	NR
N025072-~~002B~~ -001B	SAMP	1	Ca	141.54	0.47	15	PASS	
N025046-002B	SAMP	1	Ca	86.31	0.45	15	PASS	
N025046-002B	SAMP	5	Ca	17.13	0.24	15	PASS	
CCV7	CCV	1	Ca	9.83	0.2	15	PASS	
CCB7	CCB	1	Ca	0.032	25.99	15	<PQL	
N025046-002B-PS	PS	1	Ca	95.96	0.45	15	PASS	
N025046-002B-MS	MS	1	Ca	97.17	0.97	15	PASS	
N025046-002B-MSD	MSD	1	Ca	98.79	0.71	15	PASS	
N025046-003B	SAMP	1	Ca	85.58	0.48	15	PASS	

RSD SUMMARY: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N025046-004B	SAMP	1	Ca	101.15	0.17	15	PASS
N025046-006B	SAMP	1	Ca	92.84	0.6	15	PASS
N025046-007B	SAMP	1	Ca	97.94	0.52	15	PASS
N025046-008B	SAMP	1	Ca	121.32	0.75	15	PASS
N025046-009B	SAMP	1	Ca	91.58	0.3	15	PASS
N025046-010B	SAMP	1	Ca	90.23	0.33	15	PASS
CCV8	CCV	1	Ca	9.82	0.21	15	PASS
CCB8	CCB	1	Ca	0.013	148	15	<PQL
LLCCV2	CCV2	1	Ca	0.25	7.93	20	PASS
ICSA3	ICSA	1	Ca	508.59	0.67	15	PASS
ICSAB3	ICSAB	1	Ca	520.45	0.29	15	PASS
N025075-002B	SAMP	1	Ca	97.38	0.43	15	PASS
N025075-003B	SAMP	1	Ca	113.79	0.16	15	PASS
N025075-005B	SAMP	1	Ca	108.85	0.3	15	PASS
N025075-006B	SAMP	1	Ca	107.51	1.06	15	PASS
N025075-007B	SAMP	1	Ca	99.26	0.16	15	PASS
N025075-008B	SAMP	1	Ca	88.17	0.48	15	PASS
N025075-009B	SAMP	1	Ca	110.68	0.5	15	PASS
N025075-010B	SAMP	1	Ca	112.12	0.72	15	PASS
N025075-011B	SAMP	1	Ca	106.43	0.52	15	PASS
CCV9	CCV	1	Ca	9.86	0.69	15	PASS
CCB9	CCB	1	Ca	0.011	198.082	15	<PQL
CCV10	CCV	1	Ca	9.85	0.92	15	PASS
CCB10	CCB	1	Ca	0.016	377.77	15	<PQL
CCV11	CCV	1	Ca	9.76	1.039	15	PASS
CCB11	CCB	1	Ca	0.028	51.41	15	<PQL
N025072-002B	SAMP	1	Ca	106.67	0.26	15	PASS
CCV12	CCV	1	Ca	9.81	0.12	15	PASS
CCB12	CCB	1	Ca	0.043	70.091	15	<PQL
LLCCV3	CCV2	1	Ca	0.25	15.72	20	PASS
ICSA4	ICSA	1	Ca	503.94	0.39	15	PASS
ICSAB4	ICSAB	1	Ca	515.86	0.36	15	PASS
CalBlk	IBLK	1	Fe	0	16.64	15	<PQL
Standard1	ICAL	1	Fe	0.02	6.57	15	PASS
Standard2	ICAL	1	Fe	0.05	0.42	15	PASS
Standard3	ICAL	1	Fe	2	0.8	15	PASS
Standard4	ICAL	1	Fe	5	0.81	15	PASS
Standard5	ICAL	1	Fe	7.5	0.13	15	PASS
Standard6	ICAL	1	Fe	10	0.061	15	PASS
Standard7	ICAL	1	Fe	20	0.07	15	PASS
ICV	ICV	1	Fe	10.075	0.14	15	PASS
ICB	ICB	1	Fe	0.0028	83.45	15	<PQL

RSD SUMMARY: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
LLICV	CCV1	1	Fe	0.023	2.77	20	PASS
ICSA1	ICSA	1	Fe	178.36	0.092	15	PASS
ICSAB1	ICSAB	1	Fe	178.02	0.19	15	PASS
CCV1	CCV	1	Fe	10.098	0.071	15	PASS
CCB1	CCB	1	Fe	0.0076	11.44	15	PASS
CCV2	CCV	1	Fe	10.05	0.052	15	PASS
CCB2	CCB	1	Fe	-2.14	173.59	15	<PQL
CCB2	CCB	1	Fe	0.0066	13.038	15	PASS
CCV3	CCV	1	Fe	9.55	0.1	15	PASS
CCB3	CCB	1	Fe	0.0058	5.9	15	PASS
CCV4	CCV	1	Fe	9.49	0.047	15	PASS
CCB4	CCB	1	Fe	0.006	28.41	15	<PQL
LLCCV1	CCV2	1	Fe	0.026	2.83	20	PASS
ICSA2	ICSA	1	Fe	169.94	0.12	15	PASS
ICSAB2	ICSAB	1	Fe	169.53	0.2	15	PASS
CCV5	CCV	1	Fe	9.41	0.16	15	PASS
CCB5	CCB	1	Fe	0.0056	24.42	15	<PQL
CCV6	CCV	1	Fe	9.57	0.063	15	PASS
CCB6	CCB	1	Fe	2.49	119.75	15	NR!
CCB6	CCB	1	Fe	0.0047	22.32	15	<PQL
MB-62950	MBLK	1	Fe	-0.0005	221.45	15	<PQL
LCS-62950	LCS	1	Fe	0.11	2.12	15	PASS
N025072-001B-002B	SAMP	1	Fe	0.12	15.037	15	NR!
N025072-002B-001B	SAMP	1	Fe	0.4	0.67	15	PASS
N025046-002B	SAMP	1	Fe	0.2	0.53	15	PASS
N025046-002B	SAMP	5	Fe	0.045	16.37	15	NR!
CCV7	CCV	1	Fe	9.72	0.15	15	PASS
CCB7	CCB	1	Fe	0.0045	9.51	15	PASS
N025046-002B-PS	PS	1	Fe	0.26	0.38	15	PASS
N025046-002B-MS	MS	1	Fe	0.27	1.37	15	PASS
N025046-002B-MSD	MSD	1	Fe	0.28	0.6	15	PASS
N025046-003B	SAMP	1	Fe	0.16	0.41	15	PASS
N025046-004B	SAMP	1	Fe	2.12	0.7	15	PASS
N025046-006B	SAMP	1	Fe	0.042	3.29	15	PASS
N025046-007B	SAMP	1	Fe	0.13	0.66	15	PASS
N025046-008B	SAMP	1	Fe	0.63	0.56	15	PASS
N025046-009B	SAMP	1	Fe	1.88	0.76	15	PASS
N025046-010B	SAMP	1	Fe	1.91	0.79	15	PASS
CCV8	CCV	1	Fe	9.73	0.073	15	PASS
CCB8	CCB	1	Fe	0.0023	40.84	15	<PQL
LLCCV2	CCV2	1	Fe	0.025	3.57	20	PASS
ICSA3	ICSA	1	Fe	171.6	0.06	15	PASS

RSD SUMMARY: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSAB3	ICSAB	1	Fe	172.23	0.052	15	PASS
N025075-002B	SAMP	1	Fe	0.88	0.66	15	PASS
N025075-003B	SAMP	1	Fe	1.89	0.8	15	PASS
N025075-005B	SAMP	1	Fe	0.038	2.92	15	PASS
N025075-006B	SAMP	1	Fe	0.11	1.24	15	PASS
N025075-007B	SAMP	1	Fe	0.099	0.85	15	PASS
N025075-008B	SAMP	1	Fe	0.028	3.31	15	PASS
N025075-009B	SAMP	1	Fe	0.11	0.38	15	PASS
N025075-010B	SAMP	1	Fe	1.056	0.33	15	PASS
N025075-011B	SAMP	1	Fe	0.16	0.22	15	PASS
CCV9	CCV	1	Fe	9.7	0.061	15	PASS
CCB9	CCB	1	Fe	0.0031	28.35	15	<PQL
CCV10	CCV	1	Fe	9.74	0.15	15	PASS
CCB10	CCB	1	Fe	0.0026	41.37	15	<PQL
CCV11	CCV	1	Fe	9.69	0.14	15	PASS
CCB11	CCB	1	Fe	0.0026	94.64	15	<PQL
N025072-002B	SAMP	1	Fe	0.13	0.71	15	PASS
CCV12	CCV	1	Fe	9.69	0.18	15	PASS
CCB12	CCB	1	Fe	0.0025	78.82	15	<PQL
LLCCV3	CCV2	1	Fe	0.024	1.19	20	PASS
ICSA4	ICSA	1	Fe	171.22	0.15	15	PASS
ICSAB4	ICSAB	1	Fe	171.37	0.079	15	PASS
CalBlk	IBLK	1	Mg	0	22.041	15	<PQL
Standard1	ICAL	1	Mg	0.1	2.14	15	PASS
Standard2	ICAL	1	Mg	1	0.15	15	PASS
Standard3	ICAL	1	Mg	2	0.33	15	PASS
Standard4	ICAL	1	Mg	5	0.71	15	PASS
Standard5	ICAL	1	Mg	7.5	0.58	15	PASS
Standard6	ICAL	1	Mg	10	0.21	15	PASS
Standard7	ICAL	1	Mg	20	0.46	15	PASS
ICV	ICV	1	Mg	10.14	0.33	15	PASS
ICB	ICB	1	Mg	-0.0013	76.55	15	<PQL
LLICV	CCV1	1	Mg	0.12	0.69	20	PASS
ICSA1	ICSA	1	Mg	473.71	0.13	15	PASS
ICSAB1	ICSAB	1	Mg	485.45	0.33	15	PASS
CCV1	CCV	1	Mg	10.19	0.39	15	PASS
CCB1	CCB	1	Mg	-0.0014	19.29	15	<PQL
CCV2	CCV	1	Mg	10.002	0.24	15	PASS
CCB2	CCB	1	Mg	-0.95	172.65	15	<PQL
CCB2	CCB	1	Mg	-0.0016	17.13	15	<PQL
CCV3	CCV	1	Mg	9.56	0.56	15	PASS
CCB3	CCB	1	Mg	-0.0011	32.26	15	<PQL

RSD SUMMARY: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment	
CCV4	CCV	1	Mg	9.51	0.51	15	PASS	
CCB4	CCB	1	Mg	-0.00084	38.27	15	<PQL	
LLCCV1	CCV2	1	Mg	0.11	1.23	20	PASS	
ICSA2	ICSA	1	Mg	447.86	0.093	15	PASS	
ICSAB2	ICSAB	1	Mg	459.02	0.2	15	PASS	
CCV5	CCV	1	Mg	9.42	0.32	15	PASS	
CCB5	CCB	1	Mg	-0.00085	39.4	15	<PQL	
CCV6	CCV	1	Mg	9.7	0.55	15	PASS	
CCB6	CCB	1	Mg	-1.64	45.82	15	<PQL	
CCB6	CCB	1	Mg	0.0021	26.24	15	<PQL	
MB-62950	MBLK	1	Mg	0.0024	32.41	15	<PQL	
LCS-62950	LCS	1	Mg	9.25	1.24	15	PASS	
N025072-~~001~~B -002B	SAMP	1	Mg	17.38	0.46	15	PASS	NR
N025072-~~002~~B -001B	SAMP	1	Mg	32.94	0.35	15	PASS	
N025046-002B	SAMP	1	Mg	17.46	0.59	15	PASS	
N025046-002B	SAMP	5	Mg	3.64	0.12	15	PASS	
CCV7	CCV	1	Mg	9.84	0.42	15	PASS	
CCB7	CCB	1	Mg	0.00019	71.23	15	<PQL	
N025046-002B-PS	PS	1	Mg	26.49	0.63	15	PASS	
N025046-002B-MS	MS	1	Mg	26.9	0.98	15	PASS	
N025046-002B-MSD	MSD	1	Mg	27.24	0.53	15	PASS	
N025046-003B	SAMP	1	Mg	17.34	0.46	15	PASS	
N025046-004B	SAMP	1	Mg	17.18	0.47	15	PASS	
N025046-006B	SAMP	1	Mg	16.6	0.93	15	PASS	
N025046-007B	SAMP	1	Mg	19.67	0.44	15	PASS	
N025046-008B	SAMP	1	Mg	19.23	0.32	15	PASS	
N025046-009B	SAMP	1	Mg	14.24	0.66	15	PASS	
N025046-010B	SAMP	1	Mg	14.001	0.56	15	PASS	
CCV8	CCV	1	Mg	9.89	0.49	15	PASS	
CCB8	CCB	1	Mg	-0.0014	17.24	15	<PQL	
LLCCV2	CCV2	1	Mg	0.12	1.1	20	PASS	
ICSA3	ICSA	1	Mg	461.78	0.2	15	PASS	
ICSAB3	ICSAB	1	Mg	472.63	0.14	15	PASS	
N025075-002B	SAMP	1	Mg	16	0.45	15	PASS	
N025075-003B	SAMP	1	Mg	18.075	0.88	15	PASS	
N025075-005B	SAMP	1	Mg	17.5	0.38	15	PASS	
N025075-006B	SAMP	1	Mg	17.46	0.03	15	PASS	
N025075-007B	SAMP	1	Mg	16.16	0.6	15	PASS	
N025075-008B	SAMP	1	Mg	15.007	0.22	15	PASS	
N025075-009B	SAMP	1	Mg	17.13	1.044	15	PASS	
N025075-010B	SAMP	1	Mg	19.37	0.37	15	PASS	
N025075-011B	SAMP	1	Mg	20.58	0.13	15	PASS	

RSD SUMMARY: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV9	CCV	1	Mg	9.81	0.18	15	PASS
CCB9	CCB	1	Mg	-0.00071	42.8	15	<PQL
CCV10	CCV	1	Mg	9.94	0.51	15	PASS
CCB10	CCB	1	Mg	-0.00094	23.029	15	<PQL
CCV11	CCV	1	Mg	9.84	0.64	15	PASS
CCB11	CCB	1	Mg	-0.00047	45.62	15	<PQL
N025072-002B	SAMP	1	Mg	17.34	0.95	15	PASS
CCV12	CCV	1	Mg	9.81	0.41	15	PASS
CCB12	CCB	1	Mg	-0.00091	8.59	15	PASS
LLCCV3	CCV2	1	Mg	0.11	0.35	20	PASS
ICSA4	ICSA	1	Mg	458.24	0.15	15	PASS
ICSAB4	ICSAB	1	Mg	468.76	0.5	15	PASS

RSD SUMMARY: 170725A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0	9.75	15	PASS
Standard1	ICAL	1	Na	0.1	8.84	15	PASS
Standard2	ICAL	1	Na	1	0.55	15	PASS
Standard3	ICAL	1	Na	5	0.54	15	PASS
Standard4	ICAL	1	Na	10	0.51	15	PASS
Standard5	ICAL	1	Na	20	0.26	15	PASS
Standard6	ICAL	1	Na	40	0.32	15	PASS
ICV	ICV	1	Na	9.95	0.56	15	PASS
ICB	ICB	1	Na	-0.028	26.34	15	<PQL
ICSA1	ICSA	1	Na	-0.029	22.89	15	<PQL
ICSAB1	ICSAB	1	Na	9.92	0.36	15	PASS
MB-62950	MBLK	1	Na	-0.039	6.75	15	PASS
LCS2-62950	LCS	1	Na	20.51	0.7	15	PASS
N025072-001B	SAMP	1	Na	632.29	0.61	15	PASS
N025072-002B	SAMP	1	Na	1180.8	0.68	15	PASS
N025072-001B	SAMP	25	Na	28.5	0.46	15	PASS
N025072-001B	SAMP	125	Na	5.93	0.27	15	PASS
CCV1	CCV	1	Na	9.98	0.41	15	PASS
CCB1	CCB	1	Na	0.09	12.54	15	PASS
N025072-001B-PS	PS	25	Na	28.71	0.46	15	PASS
N025072-001B-MS2	MS	25	Na	28.7	0.62	15	PASS
N025072-001B-MSD2	MSD	25	Na	27.73	0.66	15	PASS
N025072-002B	SAMP	50	Na	28.08	0.4	15	PASS
CCV2	CCV	1	Na	9.92	0.51	15	PASS
CCB2	CCB	1	Na	0.026	16.73	15	<PQL
ICSA2	ICSA	1	Na	0.016	52.73	15	<PQL
ICSAB2	ICSAB	1	Na	9.94	0.45	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170721A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	07/21/2017	08:43:33 AM
2	Standard1	ICAL	1	07/21/2017	08:47:54 AM
3	Standard2	ICAL	1	07/21/2017	08:52:43 AM
11	Standard3	ICAL	1	07/21/2017	08:57:32 AM
12	Standard4	ICAL	1	07/21/2017	09:02:22 AM
6	Standard5	ICAL	1	07/21/2017	09:07:14 AM
7	Standard6	ICAL	1	07/21/2017	09:12:05 AM
8	Standard7	ICAL	1	07/21/2017	09:16:56 AM
9	ICV	ICV	1	07/21/2017	09:22:46 AM
1	ICB	ICB	1	07/21/2017	09:28:38 AM
2	LLICV	CCV1	1	07/21/2017	09:32:56 AM
4	ICSA1	ICSA	1	07/21/2017	09:37:45 AM
5	ICSAB1	ICSAB	1	07/21/2017	09:43:42 AM
94	MB-62818	MBLK	1	07/21/2017	09:56:04 AM
95	LCS-62818	LCS	1	07/21/2017	10:00:54 AM
96	N024906-001B	SAMP	1	07/21/2017	10:05:45 AM
97	N024906-001B	SAMP	5	07/21/2017	10:10:36 AM
98	N024906-001B-PS	PS	1	07/21/2017	10:15:27 AM
99	N024906-001B-MS	MS	1	07/21/2017	10:20:19 AM
100	N024906-001B-MSD	MSD	1	07/21/2017	10:25:11 AM
101	N024906-002B	SAMP	1	07/21/2017	10:30:03 AM
102	N024906-003B	SAMP	1	07/21/2017	10:34:54 AM
103	N024906-004B	SAMP	1	07/21/2017	10:39:45 AM
7	CCV1	CCV	1	07/21/2017	10:44:37 AM
1	CCB1	CCB	1	07/21/2017	10:50:27 AM
104	N024906-005B	SAMP	1	07/21/2017	10:54:44 AM
105	N024906-008B	SAMP	1	07/21/2017	10:59:35 AM
106	N024906-009B	SAMP	1	07/21/2017	11:04:28 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
107	N024906-010B	SAMP	1	07/21/2017	11:09:19 AM
108	N024906-011B	SAMP	1	07/21/2017	11:14:11 AM
109	N024906-012B	SAMP	1	07/21/2017	11:19:03 AM
110	N024906-013B	SAMP	1	07/21/2017	11:23:55 AM
111	N024906-014B	SAMP	1	07/21/2017	11:29:48 AM
112	N024906-015B	SAMP	1	07/21/2017	11:34:40 AM
113	N024907-001B	SAMP	1	07/21/2017	11:39:32 AM
7	CCV2	CCV	1	07/21/2017	11:44:24 AM
1	CCB2	CCB	1	07/21/2017	11:50:16 AM
1	CCB2	CCB	1	07/21/2017	12:01:46 PM
114	N024907-003B	SAMP	1	07/21/2017	12:06:03 PM
115	N024932-001B	SAMP	1	07/21/2017	12:11:56 PM
116	N024932-002B	SAMP	1	07/21/2017	12:16:48 PM
117	N024932-003B	SAMP	1	07/21/2017	12:22:40 PM
118	N024932-004B	SAMP	1	07/21/2017	12:27:32 PM
119	N024932-005B	SAMP	1	07/21/2017	12:32:25 PM
120	MB-62830	MBLK	1	07/21/2017	12:37:19 PM
121	LCS-62830	LCS	1	07/21/2017	12:42:11 PM
122	N024932-006B	SAMP	1	07/21/2017	12:47:03 PM
123	N024932-006B	SAMP	5	07/21/2017	12:51:57 PM
7	CCV3	CCV	1	07/21/2017	12:56:50 PM
1	CCB3	CCB	1	07/21/2017	01:01:40 PM
124	N024932-006B-PS	PS	1	07/21/2017	01:05:59 PM
125	N024932-006B-MS	MS	1	07/21/2017	01:10:52 PM
126	N024932-006B-MSD	MSD	1	07/21/2017	01:16:44 PM
127	N024932-007B	SAMP	1	07/21/2017	01:21:35 PM
128	N024932-008B	SAMP	1	07/21/2017	01:27:41 PM
129	N024932-009B	SAMP	1	07/21/2017	01:32:32 PM
130	N024932-010B	SAMP	1	07/21/2017	01:38:26 PM
131	N024932-011B	SAMP	1	07/21/2017	01:44:18 PM
132	N024932-012B	SAMP	1	07/21/2017	01:49:11 PM
133	N024932-013B	SAMP	1	07/21/2017	01:54:03 PM
7	CCV4	CCV	1	07/21/2017	01:58:56 PM
1	CCB4	CCB	1	07/21/2017	02:03:46 PM
2	LLCCV1	CCV2	1	07/21/2017	02:08:04 PM
4	ICSA2	ICSA	1	07/21/2017	02:13:03 PM
5	ICSAB2	ICSAB	1	07/21/2017	02:18:59 PM
134	N024932-014B	SAMP	1	07/21/2017	02:24:56 PM
135	N024933-001B	SAMP	1	07/21/2017	02:30:50 PM
136	N024933-002B	SAMP	1	07/21/2017	02:36:43 PM
137	N024933-003B	SAMP	1	07/21/2017	02:41:36 PM
138	N024933-004B	SAMP	1	07/21/2017	02:47:31 PM
139	N024933-005B	SAMP	1	07/21/2017	02:52:24 PM
140	N024934-005B	SAMP	1	07/21/2017	02:58:17 PM
141	N024934-006B	SAMP	1	07/21/2017	03:03:09 PM
142	N024934-007B	SAMP	1	07/21/2017	03:08:01 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
143	N024934-008B	SAMP	1	07/21/2017	03:12:53 PM
7	CCV5	CCV	1	07/21/2017	03:17:45 PM
1	CCB5	CCB	1	07/21/2017	03:22:36 PM
144	N024934-009B	SAMP	1	07/21/2017	03:26:55 PM
145	N024934-010B	SAMP	1	07/21/2017	03:31:49 PM
146	MB-62897	MBLK	1	07/21/2017	03:37:42 PM
147	LCS-62897	LCS	1	07/21/2017	03:42:35 PM
148	N024934-011B	SAMP	1	07/21/2017	03:57:12 PM
149	N024934-011B	SAMP	5	07/21/2017	04:03:05 PM
150	N024934-011B-PS	PS	1	07/21/2017	04:07:57 PM
151	N024934-011B-MS	MS	1	07/21/2017	04:13:50 PM
152	N024934-011B-MSD	MSD	1	07/21/2017	04:19:44 PM
153	N024934-012B	SAMP	1	07/21/2017	04:25:37 PM
7	CCV6	CCV	1	07/21/2017	04:31:30 PM
1	CCB6	CCB	1	07/21/2017	04:36:21 PM
1	CCB6	CCB	1	07/21/2017	04:40:31 PM
154	N024934-013B	SAMP	1	07/21/2017	04:44:48 PM
155	N024934-014B	SAMP	1	07/21/2017	04:49:42 PM
156	N024963-001B	SAMP	1	07/21/2017	04:55:35 PM
157	N024980-009B	SAMP	1	07/21/2017	05:01:28 PM
38	MB-62950	MBLK	1	07/21/2017	05:06:48 PM
39	LCS-62950	LCS	1	07/21/2017	05:11:08 PM
40	N025072-001B	SAMP	1	07/21/2017	05:16:46 PM
41	N025072-002B	SAMP	1	07/21/2017	05:22:36 PM
42	N025046-002B	SAMP	1	07/21/2017	05:28:27 PM
43	N025046-002B	SAMP	5	07/21/2017	05:33:16 PM
7	CCV7	CCV	1	07/21/2017	05:38:05 PM
1	CCB7	CCB	1	07/21/2017	05:42:55 PM
44	N025046-002B-PS	PS	1	07/21/2017	05:47:15 PM
45	N025046-002B-MS	MS	1	07/21/2017	05:52:04 PM
46	N025046-002B-MSD	MSD	1	07/21/2017	05:56:54 PM
47	N025046-003B	SAMP	1	07/21/2017	06:01:46 PM
48	N025046-004B	SAMP	1	07/21/2017	06:06:37 PM
49	N025046-006B	SAMP	1	07/21/2017	06:12:29 PM
50	N025046-007B	SAMP	1	07/21/2017	06:17:21 PM
51	N025046-008B	SAMP	1	07/21/2017	06:23:14 PM
52	N025046-009B	SAMP	1	07/21/2017	06:29:06 PM
53	N025046-010B	SAMP	1	07/21/2017	06:33:58 PM
7	CCV8	CCV	1	07/21/2017	06:38:49 PM
1	CCB8	CCB	1	07/21/2017	06:43:42 PM
2	LLCCV2	CCV2	1	07/21/2017	06:48:29 PM
4	ICSA3	ICSA	1	07/21/2017	06:53:17 PM
5	ICSAB3	ICSAB	1	07/21/2017	06:59:12 PM
54	N025075-002B	SAMP	1	07/21/2017	07:05:09 PM
55	N025075-003B	SAMP	1	07/21/2017	07:10:59 PM
56	N025075-005B	SAMP	1	07/21/2017	07:16:49 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
57	N025075-006B	SAMP	1	07/21/2017	07:22:41 PM
58	N025075-007B	SAMP	1	07/21/2017	07:28:32 PM
59	N025075-008B	SAMP	1	07/21/2017	07:33:23 PM
60	N025075-009B	SAMP	1	07/21/2017	07:38:14 PM
61	N025075-010B	SAMP	1	07/21/2017	07:44:05 PM
62	N025075-011B	SAMP	1	07/21/2017	07:49:58 PM
63	MB-62981	MBLK	1	07/21/2017	07:55:49 PM
7	CCV9	CCV	1	07/21/2017	08:00:09 PM
1	CCB9	CCB	1	07/21/2017	08:04:59 PM
64	LCS-62981	LCS	1	07/21/2017	08:09:15 PM
65	N025095-001B	SAMP	1	07/21/2017	08:14:06 PM
66	N025095-001B	SAMP	5	07/21/2017	08:18:58 PM
67	N025095-001B-PS	PS	1	07/21/2017	08:23:48 PM
68	N025095-001B-MS	MS	1	07/21/2017	08:28:39 PM
69	N025095-001B-MSD	MSD	1	07/21/2017	08:33:30 PM
70	N025095-002B	SAMP	1	07/21/2017	08:38:21 PM
71	N025095-003B	SAMP	1	07/21/2017	08:41:57 PM
72	N025095-004B	SAMP	1	07/21/2017	08:47:48 PM
73	N025095-005B	SAMP	1	07/21/2017	08:52:38 PM
7	CCV10	CCV	1	07/21/2017	08:58:30 PM
1	CCB10	CCB	1	07/21/2017	09:03:21 PM
74	N025095-006B	SAMP	1	07/21/2017	09:07:39 PM
75	N025095-007B	SAMP	1	07/21/2017	09:12:31 PM
76	N025095-008B	SAMP	1	07/21/2017	09:17:22 PM
77	N025095-009B	SAMP	1	07/21/2017	09:23:13 PM
78	N025095-010B	SAMP	1	07/21/2017	09:29:05 PM
79	N025095-011B	SAMP	1	07/21/2017	09:34:56 PM
80	N025095-012B	SAMP	1	07/21/2017	09:40:47 PM
81	N025095-013B	SAMP	1	07/21/2017	09:46:39 PM
82	N025095-014B	SAMP	1	07/21/2017	09:52:31 PM
83	N025096-001B	SAMP	1	07/21/2017	09:58:22 PM
7	CCV11	CCV	1	07/21/2017	10:03:14 PM
1	CCB11	CCB	1	07/21/2017	10:08:05 PM
84	N025096-003B	SAMP	1	07/21/2017	10:12:23 PM
85	N025096-004B	SAMP	1	07/21/2017	10:17:14 PM
86	N025096-005B	SAMP	1	07/21/2017	10:22:06 PM
87	N025096-006B	SAMP	1	07/21/2017	10:27:58 PM
88	N025096-007B	SAMP	1	07/21/2017	10:33:51 PM
40	N025072-002B	SAMP	1	07/21/2017	10:39:44 PM
70	N025095-002B	SAMP	1	07/21/2017	10:45:35 PM
7	CCV12	CCV	1	07/21/2017	10:51:26 PM
1	CCB12	CCB	1	07/21/2017	10:56:16 PM
2	LLCCV3	CCV2	1	07/21/2017	11:00:34 PM
4	ICSA4	ICSA	1	07/21/2017	11:05:23 PM
5	ICSAB4	ICSAB	1	07/21/2017	11:11:19 PM

INJECTION LOG: 170725A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170601A,0.025<50mL
Standard2	MWST-170601A,0.25<50mL
Standard3	MWST-170601A,1.25<50mL
Standard4	MWST-170601A,2.5<50mL
Standard5	MWST-170601A,5<50mL
Standard6	MWST-170601A,10<50mL
ICV	MWST-170228B
CCV	MWST-170601A,2.5<50mL
ICSA/ICSAB	MWST-170601L/MWST-170601B
Int. Std. (Sc):	MSST-170404Q
PS Spike	MSST-130329D/E

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	07/25/2017	08:23:26 AM
26	Standard1	ICAL	1	07/25/2017	08:26:44 AM
27	Standard2	ICAL	1	07/25/2017	08:30:01 AM
28	Standard3	ICAL	1	07/25/2017	08:33:48 AM
29	Standard4	ICAL	1	07/25/2017	08:37:36 AM
30	Standard5	ICAL	1	07/25/2017	08:41:26 AM
31	Standard6	ICAL	1	07/25/2017	08:45:16 AM
32	ICV	ICV	1	07/25/2017	08:54:07 AM
1	ICB	ICB	1	07/25/2017	08:57:57 AM
33	ICSA1	ICSA	1	07/25/2017	09:01:15 AM
34	ICSAB1	ICSAB	1	07/25/2017	09:04:34 AM
98	N024050-008C	SAMP	25	07/25/2017	09:09:14 AM
99	N024050-008B	SAMP	25	07/25/2017	09:12:33 AM
100	N024050-008C	SAMP	5	07/25/2017	09:15:52 AM
101	N024050-008B	SAMP	5	07/25/2017	09:19:12 AM
102	MB-62950	MBLK	1	07/25/2017	09:22:32 AM
103	LCS2-62950	LCS	1	07/25/2017	09:25:04 AM
104	N025072-001B	SAMP	1	07/25/2017	09:28:55 AM
105	N025072-002B	SAMP	1	07/25/2017	09:33:48 AM
106	N025072-001B	SAMP	25	07/25/2017	09:38:43 AM
107	N025072-001B	SAMP	125	07/25/2017	09:42:03 AM
29	CCV1	CCV	1	07/25/2017	09:44:38 AM
1	CCB1	CCB	1	07/25/2017	09:48:29 AM
108	N025072-001B-PS	PS	25	07/25/2017	09:51:47 AM
109	N025072-001B-MS2	MS	25	07/25/2017	09:55:08 AM
110	N025072-001B-MSD2	MSD	25	07/25/2017	09:58:29 AM
111	N025072-002B	SAMP	50	07/25/2017	10:01:50 AM
29	CCV2	CCV	1	07/25/2017	10:05:11 AM
1	CCB2	CCB	1	07/25/2017	10:09:01 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
33	ICSA2	ICSA	1	07/25/2017	10:12:18 AM
34	ICSAB2	ICSAB	1	07/25/2017	10:15:35 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/20/2017 7:52:38**
Prep End Date: **7/20/2017 1:00:00**
Prep Batch **62950** Prep Code: **3010_W_DISS**

Reviewed/ Date: 8/4/2017
Initials/ Date: 8/4/2017
Technician **Mark Gesmundo**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**95**	**DB-2-36**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-62950	Aqueous		25	☐	0	0	25	1.000		
LCS2-62950	Aqueous		25	☐	0	0	25	1.000		
MB-62950	Aqueous		25	☐	0	0	25	1.000		
N025046-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N025046-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N025072-001B	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
9137	HYDROCHLORIC ACID
9145	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-111006A	Potassium	LCS,MS,MSD	0.05
MSST-130329D	Sodium	LCS,MS,MSD	0.05
MSST-170116A	Strontium	LCS,MS,MSD	0.125
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/20/2017 7:52:38**
Prep End Date: **7/20/2017 1:00:00**
Prep Batch **62950** Prep Code: **3010_W_DISS**

Reviewed/ Date: 8/4/2017
Initials/ Date: 8/4/2017
Technician **Mark Gesmundo**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**95**	**DB-2-36**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025072-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025072-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025072-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N025075-011B	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
9137	HYDROCHLORIC ACID
9145	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-111006A	Potassium	LCS,MS,MSD	0.05
MSST-130329D	Sodium	LCS,MS,MSD	0.05
MSST-170116A	Strontium	LCS,MS,MSD	0.125
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170721A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	07/21/2017	08:43:33 AM	Mg	279.079	17	0.00	mg/L	
Standard1	07/21/2017	08:47:54 AM	Mg	279.079	1166	0.1000	mg/L	
Standard2	07/21/2017	08:52:43 AM	Mg	279.079	10103	1.000	mg/L	
Standard3	07/21/2017	08:57:32 AM	Mg	279.079	20292	2.000	mg/L	
Standard4	07/21/2017	09:02:22 AM	Mg	279.079	51330	5.000	mg/L	
Standard5	07/21/2017	09:07:14 AM	Mg	279.079	77991	7.500	mg/L	
Standard6	07/21/2017	09:12:05 AM	Mg	279.079	103789	10.000	mg/L	
Standard7	07/21/2017	09:16:56 AM	Mg	279.079	203944	20.000	mg/L	1.0000
Calcium								
CalBlk	07/21/2017	08:43:33 AM	Ca	227.546	-40	0.00	mg/L	
Standard1	07/21/2017	08:47:54 AM	Ca	227.546	34	0.2000	mg/L	
Standard2	07/21/2017	08:52:43 AM	Ca	227.546	166	1.000	mg/L	
Standard3	07/21/2017	08:57:32 AM	Ca	227.546	342	2.000	mg/L	
Standard4	07/21/2017	09:02:22 AM	Ca	227.546	854	5.000	mg/L	
Standard5	07/21/2017	09:07:14 AM	Ca	227.546	1285	7.500	mg/L	
Standard6	07/21/2017	09:12:05 AM	Ca	227.546	1735	10.000	mg/L	
Standard7	07/21/2017	09:16:56 AM	Ca	227.546	3455	20.000	mg/L	1.0000
Iron								
CalBlk	07/21/2017	08:43:33 AM	Fe	273.953	161	0.00	mg/L	
Standard1	07/21/2017	08:47:54 AM	Fe	273.953	444	0.0200	mg/L	
Standard2	07/21/2017	08:52:43 AM	Fe	273.953	1528	0.050	mg/L	
Standard3	07/21/2017	08:57:32 AM	Fe	273.953	38308	2.000	mg/L	
Standard4	07/21/2017	09:02:22 AM	Fe	273.953	97151	5.000	mg/L	
Standard5	07/21/2017	09:07:14 AM	Fe	273.953	139959	7.500	mg/L	
Standard6	07/21/2017	09:12:05 AM	Fe	273.953	186459	10.000	mg/L	
Standard7	07/21/2017	09:16:56 AM	Fe	273.953	369402	20.000	mg/L	0.9999

INITIAL CALIBRATION SUMMARY: 170725A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	07/25/2017	08:23:26 AM	Na	589.594	65	0.00	mg/L	
Standard1	07/25/2017	08:26:44 AM	Na	589.594	196	0.1000	mg/L	
Standard2	07/25/2017	08:30:01 AM	Na	589.594	1990	1.000	mg/L	
Standard3	07/25/2017	08:33:48 AM	Na	589.594	10232	5.000	mg/L	
Standard4	07/25/2017	08:37:36 AM	Na	589.594	19786	10.000	mg/L	
Standard5	07/25/2017	08:41:26 AM	Na	589.594	39561	20.000	mg/L	
Standard6	07/25/2017	08:45:16 AM	Na	589.594	79224	40.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ICV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700558**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10074.722	500	10000	0	101	90	110				
Iron	10075.446	20	10000	0	101	90	110				
Magnesium	10136.237	100	10000	0	101	90	110				

Sample ID **LLICV1** SampType: **CCV1** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ZZZZZZ** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	258.878	500	200.0	0	129	80	120				S
Iron	22.566	20	20.00	0	113	80	120				
Magnesium	119.970	100	100.0	0	120	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10122.541	500	10000	0	101	90	110				
Iron	10097.979	20	10000	0	101	90	110				
Magnesium	10192.765	100	10000	0	102	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10032.333	500	10000	0	100	90	110				
Iron	10049.772	20	10000	0	100	90	110				
Magnesium	10002.399	100	10000	0	100	90	110				

Qualifiers:

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

Ca on LLICV is biased high however, samples were enclosed by LLCCV1 and LLCCV2 which passed criteria.

8/4/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV3** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9770.371	500	10000	0	97.7	90	110				
Iron	9546.275	20	10000	0	95.5	90	110				
Magnesium	9564.559	100	10000	0	95.6	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9757.956	500	10000	0	97.6	90	110				
Iron	9487.496	20	10000	0	94.9	90	110				
Magnesium	9507.153	100	10000	0	95.1	90	110				

Sample ID **LLCCV1** SampType: **CCV2** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ZZZZZZ** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	223.469	500	200.0	0	112	70	130				
Iron	25.659	20	20.00	0	128	70	130				
Magnesium	112.861	100	100.0	0	113	70	130				

Sample ID **CCV5** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9638.018	500	10000	0	96.4	90	110				
Iron	9414.070	20	10000	0	94.1	90	110				
Magnesium	9419.220	100	10000	0	94.2	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV6** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9662.310	500	10000	0	96.6	90	110				
Iron	9568.093	20	10000	0	95.7	90	110				
Magnesium	9700.277	100	10000	0	97.0	90	110				

Sample ID **CCV7** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9828.249	500	10000	0	98.3	90	110				
Iron	9722.862	20	10000	0	97.2	90	110				
Magnesium	9841.207	100	10000	0	98.4	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9815.809	500	10000	0	98.2	90	110				
Iron	9727.338	20	10000	0	97.3	90	110				
Magnesium	9888.965	100	10000	0	98.9	90	110				

Sample ID **LLCCV2** SampType: **CCV2** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ZZZZZZ** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	247.414	500	200.0	0	124	70	130				
Iron	24.773	20	20.00	0	124	70	130				
Magnesium	116.603	100	100.0	0	117	70	130				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV9** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9864.689	500	10000	0	98.6	90	110				
Iron	9697.603	20	10000	0	97.0	90	110				
Magnesium	9814.814	100	10000	0	98.1	90	110				

Sample ID **CCV10** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9847.430	500	10000	0	98.5	90	110				
Iron	9739.705	20	10000	0	97.4	90	110				
Magnesium	9936.701	100	10000	0	99.4	90	110				

Sample ID **CCV11** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9758.035	500	10000	0	97.6	90	110				
Iron	9693.214	20	10000	0	96.9	90	110				
Magnesium	9838.298	100	10000	0	98.4	90	110				

Sample ID **CCV12** SampType: **CCV** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **CCV** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9805.094	500	10000	0	98.1	90	110				
Iron	9685.341	20	10000	0	96.9	90	110				
Magnesium	9806.922	100	10000	0	98.1	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **LLCCV3**	SampType: **CCV2**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **ZZZZZZ**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	251.844	500	200.0	0	126	70	130				
Iron	23.579	20	20.00	0	118	70	130				
Magnesium	107.603	100	100.0	0	108	70	130				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **ICV**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9951.904	500	10000	0	99.5	90	110				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **CCV**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9975.586	500	10000	0	99.8	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **CCV**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9920.993	500	10000	0	99.2	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **ICB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	2.819	500									
Iron	2.762	20									
Magnesium	-1.28117	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	14.911	500									
Iron	7.621	20									
Magnesium	-1.361664	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	8.288	500									
Iron	6.597	20									
Magnesium	-1.604233	100									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	19.490	500									
Iron	5.832	20									
Magnesium	-1.067799	100									

Qualifiers:

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	31.714	500									
Iron	5.966	20									
Magnesium	-0.837692	100									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5.520	500									
Iron	5.551	20									
Magnesium	-0.853021	100									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700639**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9.365	500									
Iron	4.716	20									
Magnesium	2.131	100									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	31.686	500									
Iron	4.488	20									
Magnesium	0.186	100									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	12.966	500									
Iron	2.290	20									
Magnesium	-1.34769	100									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	11.341	500									
Iron	3.130	20									
Magnesium	-0.712279	100									

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	16.284	500									
Iron	2.613	20									
Magnesium	-0.938811	100									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700702**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	28.423	500									
Iron	2.577	20									
Magnesium	-0.46637	100									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **CCB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	43.420	500									
Iron	2.502	20									
Magnesium	-0.908001	100									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **ICB**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705083**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-27.516379	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **CCB**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	89.499	500									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **CCB**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	26.202	500									

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ICSA** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	498491.747	50	500000	0	99.7	80	120				
Calcium	520106.560	500	500000	0	104	80	120				
Iron	178360.298	20	200000	0	89.2	80	120				
Magnesium	473711.874	100	500000	0	94.7	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ICSAB** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	509937.896	50	500000	0	102	80	120				
Calcium	532848.082	500	500000	0	107	80	120				
Iron	178016.927	20	200000	0	89.0	80	120				
Magnesium	485445.451	100	500000	0	97.1	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ICSA** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	482371.239	50	500000	0	96.5	80	120				
Calcium	507464.758	500	500000	0	101	80	120				
Iron	169944.461	20	200000	0	85.0	80	120				
Magnesium	447863.038	100	500000	0	89.6	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **116522**
Client ID: **ICSAB** Batch ID: **R116522** TestNo: **EPA 6010B** Analysis Date: **7/21/2017** SeqNo: **2700614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	494071.242	50	500000	0	98.8	80	120				
Calcium	517784.181	500	500000	0	104	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	116522
Client ID:	ICSAB	Batch ID:	R116522	TestNo:	EPA 6010B			Analysis Date:	7/21/2017	SeqNo:	2700614

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	169527.201	20	200000	0	84.8	80	120				
Magnesium	459020.759	100	500000	0	91.8	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	116522
Client ID:	ICSA	Batch ID:	R116522	TestNo:	EPA 6010B			Analysis Date:	7/21/2017	SeqNo:	2700665

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	484800.243	50	500000	0	97.0	80	120				
Calcium	508590.274	500	500000	0	102	80	120				
Iron	171603.353	20	200000	0	85.8	80	120				
Magnesium	461780.534	100	500000	0	92.4	80	120				

Sample ID	ICSAB3	SampType:	ICSAB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	116522
Client ID:	ICSAB	Batch ID:	R116522	TestNo:	EPA 6010B			Analysis Date:	7/21/2017	SeqNo:	2700666

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	495997.994	50	500000	0	99.2	80	120				
Calcium	520451.758	500	500000	0	104	80	120				
Iron	172226.608	20	200000	0	86.1	80	120				
Magnesium	472634.801	100	500000	0	94.5	80	120				

Sample ID	ICSA4	SampType:	ICSA	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	116522
Client ID:	ICSA	Batch ID:	R116522	TestNo:	EPA 6010B			Analysis Date:	7/21/2017	SeqNo:	2700713

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	484728.693	50	500000	0	96.9	80	120				
Calcium	503940.162	500	500000	0	101	80	120				
Iron	171222.069	20	200000	0	85.6	80	120				
Magnesium	458240.746	100	500000	0	91.6	80	120				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116522**
Client ID: **ICSAB**	Batch ID: **R116522**	TestNo: **EPA 6010B**		Analysis Date: **7/21/2017**	SeqNo: **2700714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	495502.173	50	500000	0	99.1	80	120				
Calcium	515863.919	500	500000	0	103	80	120				
Iron	171368.974	20	200000	0	85.7	80	120				
Magnesium	468764.120	100	500000	0	93.8	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **ICSA**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705084**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-28.661803	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **ICSAB**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705085**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9917.449	500	10000	0	99.2	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **ICSA**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	15.660	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **116597**
Client ID: **ICSAB**	Batch ID: **R116597**	TestNo: **EPA 6010B**		Analysis Date: **7/25/2017**	SeqNo: **2705105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9938.878	500	10000	0	99.4	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.73	65-125	PASS
Standard2	ICAL	1	1.036	103.55	65-125	PASS
Standard3	ICAL	1	0.99	99.24	65-125	PASS
Standard4	ICAL	1	0.98	98.003	65-125	PASS
Standard5	ICAL	1	0.96	96.22	65-125	PASS
Standard6	ICAL	1	0.96	95.77	65-125	PASS
Standard7	ICAL	1	0.95	94.81	65-125	PASS
ICV	ICV	1	0.95	95.084	65-125	PASS
ICB	ICB	1	0.99	99.39	65-125	PASS
LLICV	CCV1	1	1	99.56	65-125	PASS
ICSA1	ICSA	1	0.86	86.35	65-125	PASS
ICSAB1	ICSAB	1	0.84	83.84	65-125	PASS
CCV1	CCV	1	0.97	97.34	65-125	PASS
CCB1	CCB	1	1.0027	100.27	65-125	PASS
CCV2	CCV	1	0.99	98.55	65-125	PASS
CCB2	CCB	1	0.39	38.55	65-125	NR!
CCB2	CCB	1	1.01	101.03	65-125	PASS
CCV3	CCV	1	0.98	98.2	65-125	PASS
CCB3	CCB	1	1.023	102.32	65-125	PASS
CCV4	CCV	1	1	99.56	65-125	PASS
CCB4	CCB	1	1.04	103.95	65-125	PASS
LLCCV1	CCV2	1	1.032	103.23	65-125	PASS
ICSA2	ICSA	1	0.88	87.84	65-125	PASS
ICSAB2	ICSAB	1	0.86	85.76	65-125	PASS
CCV5	CCV	1	1.0049	100.49	65-125	PASS
CCB5	CCB	1	1.056	105.55	65-125	PASS
CCV6	CCV	1	0.98	98.39	65-125	PASS
CCB6	CCB	1	-0.00012	-0.012	65-125	NR!
CCB6	CCB	1	1.0069	100.69	65-125	PASS
MB-62950	MBLK	1	0.99	98.96	65-125	PASS
LCS-62950	LCS	1	0.98	97.54	65-125	PASS
N025072-001B -002B	SAMP	1	0.91	91.4	65-125	PASS
N025072-002B -001B	SAMP	1	0.86	86.085	65-125	PASS
N025046-002B	SAMP	1	0.94	93.84	65-125	PASS
N025046-002B	SAMP	5	0.96	95.76	65-125	PASS
CCV7	CCV	1	0.97	96.57	65-125	PASS
CCB7	CCB	1	0.99	99.19	65-125	PASS
N025046-002B-PS	PS	1	0.92	92.36	65-125	PASS
N025046-002B-MS	MS	1	0.93	92.63	65-125	PASS
N025046-002B-MSD	MSD	1	0.91	91.14	65-125	PASS

8/4/2017

INTERNAL STANDARD: 170721A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N025046-003B	SAMP	1	0.93	93.34	65-125	PASS
N025046-004B	SAMP	1	0.92	92.44	65-125	PASS
N025046-006B	SAMP	1	0.94	93.99	65-125	PASS
N025046-007B	SAMP	1	0.93	93.008	65-125	PASS
N025046-008B	SAMP	1	0.92	92.34	65-125	PASS
N025046-009B	SAMP	1	0.94	94.21	65-125	PASS
N025046-010B	SAMP	1	0.93	92.93	65-125	PASS
CCV8	CCV	1	0.97	97.38	65-125	PASS
CCB8	CCB	1	0.99	99.12	65-125	PASS
LLCCV2	CCV2	1	1.022	102.17	65-125	PASS
ICSA3	ICSA	1	0.86	85.8	65-125	PASS
ICSAB3	ICSAB	1	0.83	83.44	65-125	PASS
N025075-002B	SAMP	1	0.93	93.033	65-125	PASS
N025075-003B	SAMP	1	0.93	92.96	65-125	PASS
N025075-005B	SAMP	1	0.91	91.2	65-125	PASS
N025075-006B	SAMP	1	0.92	91.61	65-125	PASS
N025075-007B	SAMP	1	0.95	95.24	65-125	PASS
N025075-008B	SAMP	1	0.92	91.96	65-125	PASS
N025075-009B	SAMP	1	0.92	91.6	65-125	PASS
N025075-010B	SAMP	1	0.93	92.75	65-125	PASS
N025075-011B	SAMP	1	0.96	95.51	65-125	PASS
CCV9	CCV	1	0.98	98.01	65-125	PASS
CCB9	CCB	1	1.0053	100.53	65-125	PASS
CCV10	CCV	1	0.98	97.88	65-125	PASS
CCB10	CCB	1	1.01	101.01	65-125	PASS
CCV11	CCV	1	0.98	98.038	65-125	PASS
CCB11	CCB	1	1	99.74	65-125	PASS
N025072-002B	SAMP	1	0.92	92.22	65-125	PASS
CCV12	CCV	1	0.99	98.67	65-125	PASS
CCB12	CCB	1	1.003	100.3	65-125	PASS
LLCCV3	CCV2	1	1.034	103.4	65-125	PASS
ICSA4	ICSA	1	0.87	86.61	65-125	PASS
ICSAB4	ICSAB	1	0.85	84.81	65-125	PASS

INTERNAL STANDARD: 170725A

Instrument ID: ICP-02

Scandium

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1	99.63	65-125	PASS
Standard2	ICAL	1	1.0077	100.77	65-125	PASS
Standard3	ICAL	1	1.0017	100.17	65-125	PASS
Standard4	ICAL	1	0.99	99.35	65-125	PASS
Standard5	ICAL	1	1	99.72	65-125	PASS
Standard6	ICAL	1	1	99.88	65-125	PASS
ICV	ICV	1	1.032	103.17	65-125	PASS
ICB	ICB	1	1.056	105.57	65-125	PASS
ICSA1	ICSA	1	1.058	105.76	65-125	PASS
ICSAB1	ICSAB	1	1	99.84	65-125	PASS
MB-62950	MBLK	1	1.0062	100.62	65-125	PASS
LCS2-62950	LCS	1	1.044	104.37	65-125	PASS
N025072-001B	SAMP	1	1.034	103.37	65-125	PASS
N025072-002B	SAMP	1	0.98	97.95	65-125	PASS
N025072-001B	SAMP	25	1.032	103.24	65-125	PASS
N025072-001B	SAMP	125	1.022	102.23	65-125	PASS
CCV1	CCV	1	1.036	103.58	65-125	PASS
CCB1	CCB	1	1.026	102.57	65-125	PASS
N025072-001B-PS	PS	25	1.022	102.24	65-125	PASS
N025072-001B-MS2	MS	25	1.028	102.77	65-125	PASS
N025072-001B-MSD2	MSD	25	1.019	101.88	65-125	PASS
N025072-002B	SAMP	50	1.025	102.52	65-125	PASS
CCV2	CCV	1	1.029	102.89	65-125	PASS
CCB2	CCB	1	1.028	102.85	65-125	PASS
ICSA2	ICSA	1	1.038	103.81	65-125	PASS
ICSAB2	ICSAB	1	1.027	102.69	65-125	PASS

8/4/2017

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025072
Test Method: EPA 6010B
Analysis Date: 7/21/2017

Matrix: Groundwater
Batch No.: 62950

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025046-002B DT 5X	Calcium	ug/L	85630.57	PASS	86313.13	0.79%	10
N025046-002B DT 5X	Iron	ug/L	226.5939	NA	198.5311	14.14%	10
N025046-002B DT 5X	Magnesium	ug/L	18217.53	PASS	17464.78	4.31%	10

Note: NA - Not applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025072
Test Method: EPA 6010B
Analysis Date: 7/25/2017

Matrix: Groundwater
Batch No.: 62950

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

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025046-002B DT 125X	Sodium	ug/L	740824.9	PASS	712464.1	3.98%	10

N025072-001B

Note: NA - Not applicable

8/4/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N025046-002B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:		RunNo: **116506**
Client ID:	**ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date:	**7/21/2017**	SeqNo: **2699691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	257.223	20	100.0	198.5	58.7	80	120				S

Sample ID	**N025046-002B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:		RunNo: **116522**
Client ID:	**ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date:	**7/21/2017**	SeqNo: **2700652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	95959.600	500	10000	86310	96.5	80	120				
Iron	257.223	20	100.0	198.5	58.7	80	120				S
Magnesium	26492.993	100	10000	17460	90.3	80	120				

Sample ID	**N025072-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:		RunNo: **116597**
Client ID:	**ZZZZZZ**	Batch ID: **62950**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date:	**7/25/2017**	SeqNo: **2705098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	717714.788	12000	20000	712500	26.3	80	120				S

Qualifiers:

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

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

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

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

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

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 3010A
Date of Analysis: 2/21/2017
Instrument Name: ICP2
Analysts: MEI

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

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	%RSD	MDL	PQL
Potassium	0.15443	0.16201	0.14301	0.16141	0.16124	0.12965	0.14652	0.01215	0.15118	0.1000	8.0	0.03815	0.5
Sodium	0.11445	0.11459	0.11678	0.11286	0.11394	0.09515	0.10066	0.00835	0.10978	0.1000	7.6	0.02621	0.5
Strontium	0.02939	0.03046	0.0307	0.02962	0.03209	0.02708	0.02772	0.00174	0.02958	0.0250	5.9	0.00545	0.05

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7 **Matrix:** Water
Date of Analysis: 2/21/2017 **Units:** mg/L
Instrument Name: ICP2
Analyst: MI

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Sodium	0.02621	0.10	0.08408	0.5	0.52080	104.2
Potassium	0.03815	0.10	0.13587	0.5	0.48231	96.5
Strontium	0.00545	0.02	0.02459	0.05	0.06052	121.0

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 62969
ASSET #: N025072

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 7/23/2017

Method:

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

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

Comments:

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

1st Level Reviewer 8/3/2017 Date:

2nd Level Reviewer 8/3/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Manganese , ug/L = A * DF * PF

where:

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

For Sample **N025072-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 47.9049 * 5 * (25/25)

Manganese , ug/L = 239.5245

Reporting results in two significant figures,

Manganese , ug/L = 240

% RSD SUMMARY

PERCENT RSD SUMMARY: 170723B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	4.75	15	PASS	0.095	9.39	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.55	3.32	15	PASS	0.52	2.23	15	PASS
Std3-5/50 ppb	ICAL	1	5.18	1.89	15	PASS	5.19	1.62	15	PASS
Std4-10/100 ppb	ICAL	1	10.26	1.28	15	PASS	10.18	0.79	15	PASS
Std5-20/200 ppb	ICAL	1	20.65	1.41	15	PASS	20.5	1.54	15	PASS
Std6-40/400 ppb	ICAL	1	41.042	0.78	15	PASS	40.6	0.98	15	PASS
Std7-100/1000 ppb	ICAL	1	101.82	0.77	15	PASS	101.15	1.12	15	PASS
Std8-200/2000 ppb	ICAL	1	198.8	1.27	15	PASS	199.24	0.59	15	PASS
ICV	ICV	1	9.9	0.59	15	PASS	97.27	0.61	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.028	17.68	15	<PQL
LLICV	CCV1	1	1.077	2.57	20	PASS	0.55	0.89	20	PASS
ICSA1	ICSA	1	0.22	6.18	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.071	0.43	15	PASS	18.28	0.69	15	PASS
CCV1	CCV	1	20.54	1.16	15	PASS	20.071	1.032	15	PASS
CCB1	CCB	1	0.0039	72.41	15	<PQL	0.0011	189.22	15	<PQL
CCV2	CCV	1	20.66	0.97	15	PASS	19.91	0.51	15	PASS
CCB2	CCB	1	0.015	10.47	15	PASS	0.0071	45.24	15	<PQL
MB-62969	MBLK	1	0.0076	71.79	15	<PQL	0.016	17	15	<PQL
LCS-62969	LCS	1	10.00027	0.95	15	PASS	94.92	0.61	15	PASS
N024981-002B	SAMP	1	0.21	3.072	15	PASS	43.51	0.79	15	PASS
N024981-002B	SAMP	5	0.061	23.84	15	<PQL	9.31	1.33	15	PASS
N024981-002B-PS	PS	1	9.92	0.75	15	PASS	134.14	0.59	15	PASS
CCV3	CCV	1	20.96	0.46	15	PASS	19.78	0.13	15	PASS
CCB3	CCB	1	0.0014	278.043	15	<PQL	0.00071	600.077	15	<PQL
LLCCV1	CCV2	1	1.13	2.43	20	PASS	0.54	5.26	20	PASS
ICSA2	ICSA	1	0.23	4.79	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.88	1.47	15	PASS	18	0.98	15	PASS
N024981-002B-MS	MS	1	9.66	1.66	15	PASS	134.34	0.91	15	PASS
N024981-002B-MSD	MSD	1	9.5	1.14	15	PASS	135.31	0.37	15	PASS
N024981-003B	SAMP	1	1.88	2.94	15	PASS	<0.000	N/A	15	<PQL
N024981-004B	SAMP	1	1.81	0.97	15	PASS	0.15	44.032	15	<PQL
N024981-005B	SAMP	1	1.97	2.34	15	PASS	60.54	1.69	15	PASS
N024981-006B	SAMP	1	0.71	1.95	15	PASS	153.38	0.65	15	PASS
N024981-007B	SAMP	1	1.32	2.61	15	PASS	<0.000	N/A	15	<PQL
N024981-008B	SAMP	1	3.089	1.26	15	PASS	<0.000	N/A	15	<PQL
N024981-009B	SAMP	1	2.48	1.28	15	PASS	12.41	1.32	15	PASS
N024981-010B	SAMP	1	2.51	2.51	15	PASS	11.98	1.44	15	PASS
CCV4	CCV	1	19.051	0.81	15	PASS	18.24	1.0068	15	PASS
CCB4	CCB	1	0.015	31.048	15	<PQL	0.00015	2162.7	15	<PQL
N024981-011B	SAMP	1	1.71	2.51	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 170723B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N025030-001B	SAMP	1	3.12	1.35	15	PASS	8.72	2.37	15	PASS
N025030-002B	SAMP	1	2.91	1.79	15	PASS	8.58	1.23	15	PASS
N025047-001B	SAMP	1	1.87	2.74	15	PASS	5.044	1.29	15	PASS
N025047-002B	SAMP	1	4.93	0.63	15	PASS	<0.000	N/A	15	<PQL
N025047-003B	SAMP	1	1.29	2.063	15	PASS	47.75	2.13	15	PASS
N025047-005B	SAMP	1	0.066	1.96	15	PASS	38.16	1.034	15	PASS
N025047-006B	SAMP	1	0.072	11.46	15	PASS	38.76	0.43	15	PASS
N025048-001B	SAMP	1	10.23	0.46	15	PASS	0.24	11.25	15	PASS
N025072-001B	SAMP	1	0.089	29.74	15	<PQL	223.92	1.37	15	PASS
CCV5	CCV	1	18.68	1.19	15	PASS	18.14	1.38	15	PASS
CCB5	CCB	1	0.01	81.59	15	<PQL	0.0015	285.072	15	<PQL
N025072-002B	SAMP	1	530.37	0.55	15	PASS	9.77	1.54	15	PASS
CCV6	CCV	1	19.1	2.89	15	PASS	18.39	3.13	15	PASS
CCB6	CCB	1	0.024	20.13	15	<PQL	0.0087	51.13	15	<PQL
LLCCV2	CCV2	1	1.092	1.52	20	PASS	0.52	3.31	20	PASS
ICSA3	ICSA	1	0.24	4.35	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.26	0.64	15	PASS	17.71	0.22	15	PASS
CCV7	CCV	1	19.26	0.78	15	PASS	18.49	0.077	15	PASS
CCB7	CCB	1	0.025	17.2	15	<PQL	0.00062	471.84	15	<PQL
N025072-001B	SAMP	5	0.036	13.32	15	PASS	47.9	1.012	15	PASS
N025072-001B	SAMP	5	114.27	0.73	15	PASS	2.12	2.064	15	PASS
CCV8	CCV	1	18.51	1.81	15	PASS	18.4	1.34	15	PASS
CCB8	CCB	1	0.0095	149.26	15	<PQL	0.0032	66.74	15	<PQL
LLCCV3	CCV2	1	1.085	1.52	20	PASS	0.53	1.95	20	PASS
ICSA4	ICSA	1	0.25	5.49	15	PASS	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.085	1.34	15	PASS	18.25	1.55	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170723B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0723001.D	RINSE	RINSE	1	07/23/17 10:20 PM
B0723002.D	Cal Blank	IBLK	1	07/23/17 10:26 PM
B0723003.D	Std1-0.1/1 ppb	ICAL	1	07/23/17 10:31 PM
B0723004.D	Std2-0.5/5 ppb	ICAL	1	07/23/17 10:39 PM
B0723005.D	Std3-5/50 ppb	ICAL	1	07/23/17 10:46 PM
B0723006.D	Std4-10/100 ppb	ICAL	1	07/23/17 10:52 PM
B0723007.D	Std5-20/200 ppb	ICAL	1	07/23/17 10:57 PM
B0723008.D	Std6-40/400 ppb	ICAL	1	07/23/17 11:03 PM
B0723009.D	Std7-100/1000 ppb	ICAL	1	07/23/17 11:08 PM
B0723010.D	Std8-200/2000 ppb	ICAL	1	07/23/17 11:14 PM
B0723011.D	ICV	ICV	1	07/23/17 11:19 PM
B0723012.D	ICB	ICB	1	07/23/17 11:25 PM
B0723013.D	LLICV	CCV1	1	07/23/17 11:30 PM
B0723014.D	ICSA1	ICSA	1	07/23/17 11:36 PM
B0723015.D	ICSAB1	ICSAB	1	07/23/17 11:41 PM
B0723016.D	MB-62865	MBLK	1	07/23/17 11:47 PM
B0723017.D	LCS-62865	LCS	1	07/23/17 11:51 PM
B0723018.D	N024979-006B	SAMP	1	07/23/17 11:57 PM
B0723019.D	N024979-006B	SAMP	5	07/24/17 12:03 AM
B0723020.D	N024979-006B-PS	PS	1	07/24/17 12:09 AM
B0723021.D	N024979-006B-MS	MS	1	07/24/17 12:14 AM
B0723022.D	N024979-006B-MSD	MSD	1	07/24/17 12:20 AM
B0723023.D	N024979-007B	SAMP	1	07/24/17 12:26 AM
B0723024.D	N024979-008B	SAMP	1	07/24/17 12:32 AM
B0723025.D	N024979-011B	SAMP	1	07/24/17 12:38 AM
B0723026.D	CCV1	CCV	1	07/24/17 12:42 AM
B0723027.D	CCB1	CCB	1	07/24/17 12:48 AM
B0723028.D	N024979-012B	SAMP	1	07/24/17 12:53 AM
B0723029.D	N024980-001B	SAMP	1	07/24/17 12:59 AM
B0723030.D	N024980-002B	SAMP	1	07/24/17 1:04 AM
B0723031.D	N024980-003A	SAMP	1	07/24/17 1:10 AM
B0723032.D	N024980-004B	SAMP	1	07/24/17 1:15 AM
B0723033.D	N024980-005B	SAMP	1	07/24/17 1:21 AM
B0723034.D	N024980-006B	SAMP	1	07/24/17 1:26 AM
B0723035.D	N024980-007B	SAMP	1	07/24/17 1:32 AM
B0723036.D	N024980-008B	SAMP	1	07/24/17 1:37 AM
B0723037.D	N024980-009B	SAMP	1	07/24/17 1:43 AM
B0723038.D	CCV2	CCV	1	07/24/17 1:48 AM
B0723039.D	CCB2	CCB	1	07/24/17 1:54 AM
B0723040.D	N024980-010B	SAMP	1	07/24/17 1:59 AM
B0723041.D	N024980-011B	SAMP	1	07/24/17 2:05 AM
B0723042.D	N024980-012B	SAMP	1	07/24/17 2:10 AM

INJECTION LOG: 170723B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0723043.D	N024980-014B	SAMP	1	07/24/17 2:16 AM
B0723044.D	N024980-015B	SAMP	1	07/24/17 2:21 AM
B0723045.D	MB-62969	MBLK	1	07/24/17 2:27 AM
B0723046.D	LCS-62969	LCS	1	07/24/17 2:32 AM
B0723047.D	N024981-002B	SAMP	1	07/24/17 2:38 AM
B0723048.D	N024981-002B	SAMP	5	07/24/17 2:43 AM
B0723049.D	N024981-002B-PS	PS	1	07/24/17 2:49 AM
B0723050.D	CCV3	CCV	1	07/24/17 2:54 AM
B0723051.D	CCB3	CCB	1	07/24/17 3:00 AM
B0723052.D	LLCCV1	CCV2	1	07/24/17 3:05 AM
B0723053.D	ICSA2	ICSA	1	07/24/17 3:11 AM
B0723054.D	ICSAB2	ICSAB	1	07/24/17 3:16 AM
B0723055.D	N024981-002B-MS	MS	1	07/24/17 3:22 AM
B0723056.D	N024981-002B-MSD	MSD	1	07/24/17 3:27 AM
B0723057.D	N024981-003B	SAMP	1	07/24/17 3:33 AM
B0723058.D	N024981-004B	SAMP	1	07/24/17 3:38 AM
B0723059.D	N024981-005B	SAMP	1	07/24/17 3:44 AM
B0723060.D	N024981-006B	SAMP	1	07/24/17 3:49 AM
B0723061.D	N024981-007B	SAMP	1	07/24/17 3:54 AM
B0723062.D	N024981-008B	SAMP	1	07/24/17 4:00 AM
B0723063.D	N024981-009B	SAMP	1	07/24/17 4:05 AM
B0723064.D	N024981-010B	SAMP	1	07/24/17 4:11 AM
B0723065.D	CCV4	CCV	1	07/24/17 4:17 AM
B0723066.D	CCB4	CCB	1	07/24/17 4:23 AM
B0723067.D	N024981-011B	SAMP	1	07/24/17 4:28 AM
B0723068.D	N025030-001B	SAMP	1	07/24/17 4:34 AM
B0723069.D	N025030-002B	SAMP	1	07/24/17 4:39 AM
B0723070.D	N025047-001B	SAMP	1	07/24/17 4:45 AM
B0723071.D	N025047-002B	SAMP	1	07/24/17 4:50 AM
B0723072.D	N025047-003B	SAMP	1	07/24/17 4:56 AM
B0723073.D	N025047-005B	SAMP	1	07/24/17 5:01 AM
B0723074.D	N025047-006B	SAMP	1	07/24/17 5:07 AM
B0723075.D	N025048-001B	SAMP	1	07/24/17 5:12 AM
B0723076.D	N025072-001B	SAMP	1	07/24/17 5:18 AM
B0723077.D	CCV5	CCV	1	07/24/17 5:23 AM
B0723078.D	CCB5	CCB	1	07/24/17 5:29 AM
B0723079.D	N025072-002B	SAMP	1	07/24/17 5:34 AM
B0723080.D	MB-62968	MBLK	1	07/24/17 5:40 AM
B0723081.D	LCS-62968	LCS	1	07/24/17 5:45 AM
B0723082.D	N025029-001B	SAMP	1	07/24/17 5:51 AM
B0723083.D	N025029-001B	SAMP	5	07/24/17 5:56 AM
B0723084.D	N025029-001B-PS	PS	1	07/24/17 6:02 AM

INJECTION LOG: 170723B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0723085.D	N025029-001B-MS	MS	1	07/24/17 6:07 AM
B0723086.D	N025029-001B-MSD	MSD	1	07/24/17 6:13 AM
B0723087.D	N025029-002B	SAMP	1	07/24/17 6:18 AM
B0723088.D	N025029-003B	SAMP	1	07/24/17 6:24 AM
B0723089.D	CCV6	CCV	1	07/24/17 6:29 AM
B0723090.D	CCB6	CCB	1	07/24/17 6:35 AM
B0723091.D	LLCCV2	CCV2	1	07/24/17 6:40 AM
B0723092.D	ICSA3	ICSA	1	07/24/17 6:46 AM
B0723093.D	ICSAB3	ICSAB	1	07/24/17 6:51 AM
B0723094.D	N025029-004B	SAMP	1	07/24/17 6:57 AM
B0723095.D	N025029-005B	SAMP	1	07/24/17 7:02 AM
B0723096.D	N025029-007B	SAMP	1	07/24/17 7:08 AM
B0723097.D	N025029-008B	SAMP	1	07/24/17 7:13 AM
B0723098.D	N025029-009B	SAMP	1	07/24/17 7:19 AM
B0723099.D	N025029-010B	SAMP	1	07/24/17 7:24 AM
B0723100.D	N025029-011B	SAMP	1	07/24/17 7:30 AM
B0723101.D	N025029-013B	SAMP	1	07/24/17 7:35 AM
B0723102.D	N025029-014B	SAMP	1	07/24/17 7:41 AM
B0723103.D	N025029-015B	SAMP	1	07/24/17 7:46 AM
B0723104.D	CCV7	CCV	1	07/24/17 7:52 AM
B0723105.D	CCB7	CCB	1	07/24/17 7:57 AM
B0723106.D	N025032-001B	SAMP	1	07/24/17 8:03 AM
B0723107.D	N025032-002B	SAMP	1	07/24/17 8:08 AM
B0723108.D	N025032-004B	SAMP	1	07/24/17 8:14 AM
B0723109.D	N025032-005B	SAMP	1	07/24/17 8:21 AM
B0723110.D	N025032-006B	SAMP	1	07/24/17 8:26 AM
B0723111.D	N025032-007B	SAMP	1	07/24/17 8:32 AM
B0723112.D	N025032-009B	SAMP	1	07/24/17 8:37 AM
B0723113.D	N024980-009B	SAMP	5	07/24/17 8:42 AM
B0723114.D	N025072-001B	SAMP	5	07/24/17 8:48 AM
B0723115.D	N025072-001B	SAMP	5	07/24/17 8:53 AM
B0723116.D	CCV8	CCV	1	07/24/17 8:59 AM
B0723117.D	CCB8	CCB	1	07/24/17 9:04 AM
B0723118.D	LLCCV3	CCV2	1	07/24/17 9:11 AM
B0723119.D	ICSA4	ICSA	1	07/24/17 9:16 AM
B0723120.D	ICSAB4	ICSAB	1	07/24/17 9:21 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/21/2017 7:10:39**
Prep End Date: **7/21/2017 3:00:00**

Reviewed/ Date: 8/3/2017

Initials/ Date: 8/3/2017

Prep Batch **62969** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-14**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-62969	Aqueous		25	☐	0	0	25	1.000		
MB-62969	Aqueous		25	☐	0	0	25	1.000		
N024981-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N024981-011B	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/21/2017 7:10:39**
Prep End Date: **7/21/2017 3:00:00**
Prep Batch **62969** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 8/3/2017
Initials/ Date: 8/3/2017
Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-14**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025030-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025030-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025047-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025047-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025047-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025047-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N025047-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025048-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025072-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025072-002B	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 23 Jul 2017 07:56:04 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	165702.00	0.00	
24 Mg	577362.00	0.00	
25 Mg	76764.50	0.00	
26 Mg	89306.20	0.00	
59 Co	800037.00	0.00	
115 In	1218810.00	0.00	
206 Pb	296899.00	0.00	
207 Pb	259350.00	0.00	
208 Pb	638437.00	0.00	

RSD (%)

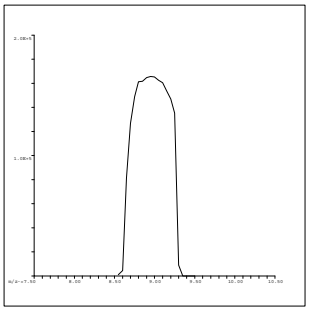
Element	Actual	Required	Flag
9 Be	0.97	5.00	
24 Mg	0.34	5.00	
25 Mg	0.54	5.00	
26 Mg	0.99	5.00	
59 Co	0.42	5.00	
115 In	0.44	5.00	
206 Pb	0.98	5.00	
207 Pb	0.70	5.00	
208 Pb	0.73	5.00	

Ion Ratio

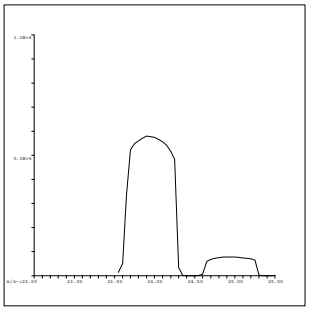
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

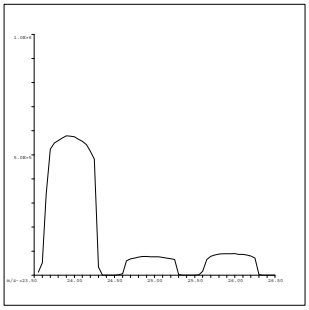
Element	Actual	Required	Flag



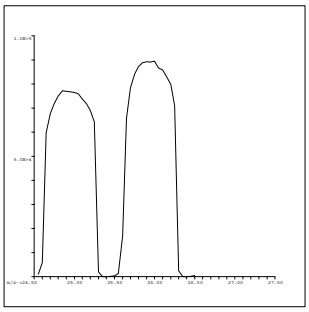
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



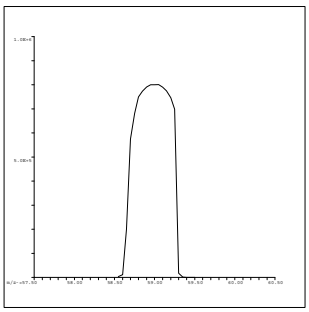
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



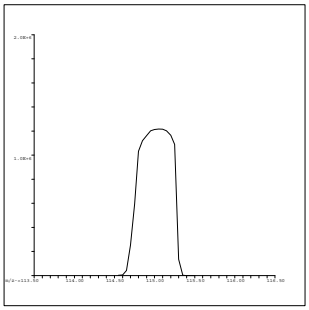
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



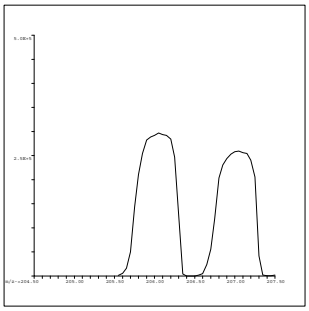
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



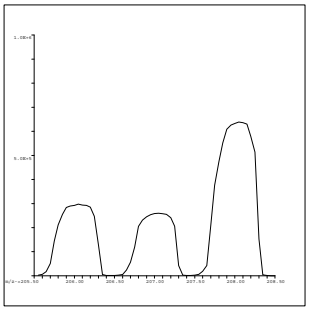
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



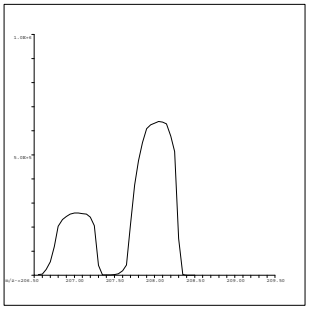
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170723B

Instrument ID: ICPMS-02

Analyte	Data File	B0723002.D	B0723004.D	B0723005.D	B0723006.D	B0723007.D	B0723008.D	B0723009.D	B0723010.D	
	Acq. Date-Time	07/23/2017 10:26 PM	07/23/2017 10:39 PM	07/23/2017 10:46 PM	07/23/2017 10:52 PM	07/23/2017 10:57 PM	07/23/2017 11:03 PM	07/23/2017 11:08 PM	07/23/2017 11:14 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	108597.3	116170	117137.5	117426.4	116418.5	118851.7	116387.9	116126.6	
55 Mn [2]	CPS	51.1	2445.3	24264	47682.1	95085.8	192277.1	468873.3	921488.5	1.0000
52 Cr [2]	CPS	407.7	5649.9	49844.8	98563.5	196263.6	397955.8	965970.9	1881283.8	0.9999

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **ICV**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/23/2017**	SeqNo: **2702424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	97.269	0.50	100.0	0	97.3	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **ZZZZZZ**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/23/2017**	SeqNo: **2702426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.548	0.50	0.5000	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCV**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.071	0.50	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCV**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.910	0.50	20.00	0	99.5	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCV**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702463**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.779	0.50	20.00	0	98.9	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	LLCCV1	SampType:	CCV2	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	116551
Client ID:	ZZZZZZ	Batch ID:	R116551	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702465

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.535	0.50	0.5000	0	107	70	130				

Sample ID	CCV4	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	116551
Client ID:	CCV	Batch ID:	R116551	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702478

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.244	0.50	20.00	0	91.2	90	110				

Sample ID	CCV5	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	116551
Client ID:	CCV	Batch ID:	R116551	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702490

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.135	0.50	20.00	0	90.7	90	110				

Sample ID	CCV6	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	116551
Client ID:	CCV	Batch ID:	R116551	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702502

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.390	0.50	20.00	0	91.9	90	110				

Sample ID	LLCCV2	SampType:	CCV2	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	116551
Client ID:	ZZZZZZ	Batch ID:	R116551	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.518	0.50	0.5000	0	104	70	130				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCV**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.492	0.50	20.00	0	92.5	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCV**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.397	0.50	20.00	0	92.0	90	110				

Sample ID **LLCCV3**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **ZZZZZZ**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.534	0.50	0.5000	0	107	70	130				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ICV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/23/2017**	SeqNo: **2702314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.904	1.0	10.00	0	99.0	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ZZZZZZ**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/23/2017**	SeqNo: **2702316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.077	1.0	1.000	0	108	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.543	1.0	20.00	0	103	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.656	1.0	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.960	1.0	20.00	0	105	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ZZZZZZ**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.133	1.0	1.000	0	113	70	130				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.051	1.0	20.00	0	95.3	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.685	1.0	20.00	0	93.4	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCV**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.102	1.0	20.00	0	95.5	90	110				

Sample ID **LLCCV2**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ZZZZZZ**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702394**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.092	1.0	1.000	0	109	70	130				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	CCV7	SampType:	CCV	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	CCV	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702407

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.256	1.0	20.00	0	96.3	90	110				

Sample ID	CCV8	SampType:	CCV	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	CCV	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702419

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.506	1.0	20.00	0	92.5	90	110				

Sample ID	LLCCV3	SampType:	CCV2	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	ZZZZZZ	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702421

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.085	1.0	1.000	0	109	70	130				

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **ICB**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/23/2017**	SeqNo: **2702425**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCB**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702440**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCB**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702452**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCB**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702464**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID: **CCB**	Batch ID: **R116551**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702479**

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

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**CCB5**	SampType:	**CCB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**CCB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702491**

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

Sample ID	**CCB6**	SampType:	**CCB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**CCB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702503**

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

Sample ID	**CCB7**	SampType:	**CCB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**CCB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702518**

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

Sample ID	**CCB8**	SampType:	**CCB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**CCB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702530**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ICB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/23/2017**	SeqNo: **2702315**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702330**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702342**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702354**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **CCB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702369**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	CCB5	SampType:	CCB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	CCB	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702381

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

Sample ID	CCB6	SampType:	CCB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	CCB	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702393

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.024	1.0									

Sample ID	CCB7	SampType:	CCB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	CCB	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702408

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.025	1.0									

Sample ID	CCB8	SampType:	CCB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	CCB	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702420

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

Qualifiers:

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**ICSA1**	SampType:	**ICSA**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSA**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/23/2017**	SeqNo:	**2702427**

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

Sample ID	**ICSAB1**	SampType:	**ICSAB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSAB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/23/2017**	SeqNo:	**2702428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.277	0.50	20.00	0	91.4	80	120				

Sample ID	**ICSA2**	SampType:	**ICSA**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSA**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702466**

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

Sample ID	**ICSAB2**	SampType:	**ICSAB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSAB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.996	0.50	20.00	0	90.0	80	120				

Sample ID	**ICSA3**	SampType:	**ICSA**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSA**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702505**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**ICSAB3**	SampType:	**ICSAB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSAB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.710	0.50	20.00	0	88.6	80	120				

Sample ID	**ICSA4**	SampType:	**ICSA**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSA**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702532**

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

Sample ID	**ICSAB4**	SampType:	**ICSAB**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:		RunNo:	**116551**
Client ID:	**ICSAB**	Batch ID:	**R116551**	TestNo:	**EPA 6020**			Analysis Date:	**7/24/2017**	SeqNo:	**2702533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.254	0.50	20.00	0	91.3	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	ICSA	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/23/2017	SeqNo:	2702317

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.220	1.0									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	ICSAB	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/23/2017	SeqNo:	2702318

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.071	1.0	20.00	0	105	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	ICSA	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702356

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.233	1.0									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	ICSAB	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702357

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.878	1.0	20.00	0	104	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	116550
Client ID:	ICSA	Batch ID:	R116550	TestNo:	EPA 6020			Analysis Date:	7/24/2017	SeqNo:	2702395

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.245	1.0									

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ICSAB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.256	1.0	20.00	0	101	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ICSA**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.246	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID: **ICSAB**	Batch ID: **R116550**	TestNo: **EPA 6020**		Analysis Date: **7/24/2017**	SeqNo: **2702423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.085	1.0	20.00	0	100	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170723B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	108597.3	108597.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	115548.9	108597.3	106.4	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	116170	108597.3	106.97	PASS	70-125
Std3-5/50 ppb	ICAL	1	117137.5	108597.3	107.86	PASS	70-125
Std4-10/100 ppb	ICAL	1	117426.4	108597.3	108.13	PASS	70-125
Std5-20/200 ppb	ICAL	1	116418.5	108597.3	107.2	PASS	70-125
Std6-40/400 ppb	ICAL	1	118851.7	108597.3	109.44	PASS	70-125
Std7-100/1000 ppb	ICAL	1	116387.9	108597.3	107.17	PASS	70-125
Std8-200/2000 ppb	ICAL	1	116126.6	108597.3	106.93	PASS	70-125
ICV	ICV	1	123338.4	108597.3	113.57	PASS	70-125
ICB	ICB	1	121005.7	108597.3	111.43	PASS	70-125
LLICV	CCV1	1	115375.5	108597.3	106.24	PASS	70-125
ICSA1	ICSA	1	118796.1	108597.3	109.39	PASS	70-125
ICSAB1	ICSAB	1	126280.9	108597.3	116.28	PASS	70-125
CCV1	CCV	1	130392.2	108597.3	120.07	PASS	70-125
CCB1	CCB	1	130509.6	108597.3	120.18	PASS	70-125
CCV2	CCV	1	121814.2	108597.3	112.17	PASS	70-125
CCB2	CCB	1	112688.6	108597.3	103.77	PASS	70-125
MB-62969	MBLK	1	121161.2	108597.3	111.57	PASS	70-125
LCS-62969	LCS	1	124205.5	108597.3	114.37	PASS	70-125
N024981-002B	SAMP	1	113537.5	108597.3	104.55	PASS	70-125
N024981-002B	SAMP	5	111975.9	108597.3	103.11	PASS	70-125
N024981-002B-PS	PS	1	120955.6	108597.3	111.38	PASS	70-125
CCV3	CCV	1	125213.8	108597.3	115.3	PASS	70-125
CCB3	CCB	1	118663.7	108597.3	109.27	PASS	70-125
LLCCV1	CCV2	1	122291.6	108597.3	112.61	PASS	70-125
ICSA2	ICSA	1	117317.1	108597.3	108.03	PASS	70-125
ICSAB2	ICSAB	1	114442.6	108597.3	105.38	PASS	70-125
N024981-002B-MS	MS	1	103114.8	108597.3	94.95	PASS	70-125
N024981-002B-MSD	MSD	1	135687	108597.3	124.95	PASS	70-125
N024981-003B	SAMP	1	105868.3	108597.3	97.49	PASS	70-125
N024981-004B	SAMP	1	115119.3	108597.3	106.01	PASS	70-125
N024981-005B	SAMP	1	101752.7	108597.3	93.7	PASS	70-125
N024981-006B	SAMP	1	100437.5	108597.3	92.49	PASS	70-125
N024981-007B	SAMP	1	83793.2	108597.3	77.16	PASS	70-125
N024981-008B	SAMP	1	109947.5	108597.3	101.24	PASS	70-125
N024981-009B	SAMP	1	87046.5	108597.3	80.16	PASS	70-125
N024981-010B	SAMP	1	98068.1	108597.3	90.3	PASS	70-125
CCV4	CCV	1	91512.5	108597.3	84.27	PASS	70-125
CCB4	CCB	1	93242.1	108597.3	85.86	PASS	70-125
N024981-011B	SAMP	1	84476.9	108597.3	77.79	PASS	70-125

INTERNAL STANDARD: 170723B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N025030-001B	SAMP	1	84079.5	108597.3	77.42	PASS	70-125
N025030-002B	SAMP	1	90361.7	108597.3	83.21	PASS	70-125
N025047-001B	SAMP	1	93761.6	108597.3	86.34	PASS	70-125
N025047-002B	SAMP	1	90489.2	108597.3	83.33	PASS	70-125
N025047-003B	SAMP	1	89358.4	108597.3	82.28	PASS	70-125
N025047-005B	SAMP	1	97117.4	108597.3	89.43	PASS	70-125
N025047-006B	SAMP	1	97968.8	108597.3	90.21	PASS	70-125
N025048-001B	SAMP	1	89182.6	108597.3	82.12	PASS	70-125
N025072-001B	SAMP	1	93057.5	108597.3	85.69	PASS	70-125
CCV5	CCV	1	98954.6	108597.3	91.12	PASS	70-125
CCB5	CCB	1	95682.6	108597.3	88.11	PASS	70-125
N025072-002B	SAMP	1	90425.4	108597.3	83.27	PASS	70-125
CCV6	CCV	1	91087	108597.3	83.88	PASS	70-125
CCB6	CCB	1	88468.4	108597.3	81.46	PASS	70-125
LLCCV2	CCV2	1	93489.1	108597.3	86.088	PASS	70-125
ICSA3	ICSA	1	88524.8	108597.3	81.52	PASS	70-125
ICSAB3	ICSAB	1	120921.4	108597.3	111.35	PASS	70-125
CCV7	CCV	1	87550.5	108597.3	80.62	PASS	70-125
CCB7	CCB	1	83000.1	108597.3	76.43	PASS	70-125
N025072-001B	SAMP	5	95777.4	108597.3	88.2	PASS	70-125
N025072-001B	SAMP	5	101324.8	108597.3	93.3	PASS	70-125
CCV8	CCV	1	110872	108597.3	102.1	PASS	70-125
CCB8	CCB	1	110494.5	108597.3	101.75	PASS	70-125
LLCCV3	CCV2	1	101965.7	108597.3	93.89	PASS	70-125
ICSA4	ICSA	1	108492	108597.3	99.9	PASS	70-125
ICSAB4	ICSAB	1	104070.5	108597.3	95.83	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N025072
Test Method: EPA 6020B
Analysis Date: 7/23/2017

Matrix: Groundwater
Batch No.: 62969

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N024981-002B DT 5X	Chromium	ug/L	0.306759	NA	0.211336	45.15%	10
N024981-002B DT 5X	Manganese	ug/L	46.53851	PASS	43.50786	6.97%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**N024981-002B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **116551**
Client ID:	**ZZZZZZ**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702462**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	134.143	0.50	100.0	43.51	90.6	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025072
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N024981-002B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **116550**
Client ID:	**ZZZZZZ**	Batch ID: **62969**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/24/2017**	SeqNo: **2702352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.922	1.0	10.00	0.2113	97.1	80	120				

Qualifiers:

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

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

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

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

August 18, 2017

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

TEL: (916) 786-3302
FAX:

Workorder No.: N025313

RE: PG&E Topock - PMP, RC000753.801B

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 02, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025313

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

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

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Sodium in QC sample N025313-002B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N025284-001C-MS and N025284-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *18-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025313
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025313-001A	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-001B	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-001C	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-001D	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-002A	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017
N025313-002B	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017
N025313-002C	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017
N025313-002D	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170803D**	QC Batch: **R116839**			PrepDate			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	8/3/2017 10:40 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170803D**	QC Batch: **R116839**			PrepDate			Analyst: **LR**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	8/3/2017 10:40 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N025313-002CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:					RunNo: **116839**		
Client ID: **ZZZZZZ**	Batch ID: **R116839**	TestNo: **EPA 120.1**		Analysis Date: **8/3/2017**					SeqNo: **2721451**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7320.000	0.10						7290	0.411	10	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170802C**	QC Batch: **R116826**			PrepDate			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	8/2/2017 04:15 PM
Temp. at time of pH Analysis	18	0.10	0.10	H	°C	1	8/2/2017 04:15 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170802C**	QC Batch: **R116826**			PrepDate			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	8/2/2017 04:15 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	8/2/2017 04:15 PM

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025313-002CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **116826**
Client ID: **ZZZZZZ** Batch ID: **R116826** TestNo: **SM4500-H+B** Analysis Date: **8/2/2017** SeqNo: **2719261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.480	0.10						7.470	0.134	10	H
Temp. at time of pH Analysis	20.100	0.10						20.70	2.94	10	H

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170803J**	QC Batch: **63197**				PrepDate	**8/3/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2400	25	25		mg/L	1	8/3/2017 01:36 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170803J**	QC Batch: **63197**				PrepDate	**8/3/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4000	50	50		mg/L	1	8/3/2017 01:36 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	**LCS-63197**	SampType:	**LCS**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**8/3/2017**	RunNo:	**116875**
Client ID:	**LCSW**	Batch ID:	**63197**	TestNo:	**SM2540C**			Analysis Date:	**8/3/2017**	SeqNo:	**2721530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	954.000	10	1000	0	95.4	80	120				

Sample ID	**MB-63197**	SampType:	**MBLK**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**8/3/2017**	RunNo:	**116875**
Client ID:	**PBW**	Batch ID:	**63197**	TestNo:	**SM2540C**			Analysis Date:	**8/3/2017**	SeqNo:	**2721531**

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

Sample ID	**N025313-002CDUP**	SampType:	**DUP**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**8/3/2017**	RunNo:	**116875**
Client ID:	**ZZZZZZ**	Batch ID:	**63197**	TestNo:	**SM2540C**			Analysis Date:	**8/3/2017**	SeqNo:	**2721534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4055.000	50						3975	1.99	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170810D**	QC Batch: **63260**				PrepDate	**8/10/2017**	Analyst: **CEI**
Calcium	130000	28	500		µg/L	1	8/10/2017 08:35 PM
Iron	130	1.8	20		µg/L	1	8/10/2017 08:35 PM
Magnesium	31000	4.4	100		µg/L	1	8/10/2017 08:35 PM
Sodium	660000	290	12000		µg/L	25	8/11/2017 08:08 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_170810D** QC Batch: **63260** PrepDate **8/10/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Calcium	190000	28	500		µg/L	1	8/10/2017 08:40 PM
Iron	ND	1.8	20		µg/L	1	8/10/2017 08:40 PM
Magnesium	26000	4.4	100		µg/L	1	8/10/2017 08:40 PM
Sodium	1400000	580	25000		µg/L	50	8/11/2017 08:11 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-63260** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **PBW** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	14.692	20									
Magnesium	21.826	100									

Sample ID **LCS1-63260** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **LCSW** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9843.543	500	10000	0	98.4	85	115				
Iron	112.354	20	100.0	0	112	85	115				
Magnesium	10313.738	100	10000	0	103	85	115				

Sample ID **N025284-002E-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **ZZZZZZ** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	105546.272	500	10000	94890	107	75	125				
Iron	111.071	20	100.0	14.49	96.6	75	125				
Magnesium	34698.861	100	10000	25940	87.6	75	125				

Sample ID **N025284-002E-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **ZZZZZZ** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	105458.223	500	10000	94890	106	75	125	105500	0.0835	20	
Iron	109.686	20	100.0	14.49	95.2	75	125	111.1	1.25	20	
Magnesium	34893.842	100	10000	25940	89.6	75	125	34700	0.560	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-63260	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052
Client ID:	PBW	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730636

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

Sample ID	LCS2-63260	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052
Client ID:	LCSW	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730637

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20555.966	500	20000	0	103	85	115				

Sample ID	N025313-002B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052
Client ID:	ZZZZZZ	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730644

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1473534.813	25000	20000	1449000	123	75	125				

Sample ID	N025313-002B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052
Client ID:	ZZZZZZ	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730645

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1475186.652	25000	20000	1449000	131	75	125	1474000	0.112	20	S

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B**	QC Batch: **63208**			PrepDate	**8/8/2017**		Analyst: **CEI**
Manganese	150	0.056	0.50		µg/L	1	8/9/2017 03:06 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B**	QC Batch: **63208**			PrepDate	**8/8/2017**	Analyst: **CEI**	
Manganese	8.6	0.056	0.50		µg/L	1	8/9/2017 12:42 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-63208**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **PBW**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Sample ID **LCS-63208**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **LCSW**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.984	1.0	10.00	0	99.8	85	115				
Manganese	101.670	0.50	100.0	0	102	85	115				

Sample ID **N025284-001C-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	110.726	0.50	100.0	20.62	90.1	75	125				

Sample ID **N025284-001C-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	434.196	5.0	10.00	438.4	-41.7	75	125				S

Sample ID **N025284-001C-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	111.145	0.50	100.0	20.62	90.5	75	125	110.7	0.378	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	N025284-001C-MSD	SampType:	MSD	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726110

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	436.623	5.0	10.00	438.4	-17.4	75	125	434.2	0.558	20	S

Sample ID	N025352-002H-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726137

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.735	1.0	10.00	0	87.3	75	125				

Sample ID	N025352-002H-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726138

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	281.760	2.5	100.0	185.8	96.0	75	125				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170803A** QC Batch: **R116845**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/3/2017 11:16 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B** QC Batch: **63208**				PrepDate	**8/8/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/9/2017 03:06 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170804A**	QC Batch: **R116882**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	540	3.3	20		µg/L	100	8/4/2017 10:34 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B**	QC Batch: **63208**			PrepDate	**8/8/2017**		Analyst: **CEI**
Chromium	520	0.096	5.0		µg/L	5	8/9/2017 12:47 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **MB-63208**	SampType: **MBLK**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **PBW**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727032**

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

Sample ID **LCS-63208**	SampType: **LCS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **LCSW**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.984	1.0	10.00	0	99.8	85	115				

Sample ID **N025284-001C-MS**	SampType: **MS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	434.196	5.0	10.00	438.4	-41.7	75	125				S

Sample ID **N025284-001C-MSD**	SampType: **MSD**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	436.623	5.0	10.00	438.4	-17.4	75	125	434.2	0.558	20	S

Sample ID **N025352-002H-MS**	SampType: **MS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date: **8/8/2017**	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727071**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.735	1.0	10.00	0	87.3	75	125				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R116845	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845
Client ID:	PBW	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719423

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

Sample ID	LCS-R116845	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845
Client ID:	LCSW	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719424

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.980	0.20	5.000	0	99.6	90	110				

Sample ID	N025313-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845
Client ID:	ZZZZZZ	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719426

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.006	0.20	1.000	0	101	90	110				

Sample ID	N025313-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845
Client ID:	ZZZZZZ	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719427

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.979	0.20	1.000	0	97.9	90	110	1.006	2.76	20	

Sample ID	N025254-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845
Client ID:	ZZZZZZ	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719429

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	192.598	4.0						192.9	0.136	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R116882	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882		
Client ID:	PBW	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721674		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		ND	0.20										

Sample ID	LCS-R116882	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882		
Client ID:	LCSW	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721675		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		4.965	0.20	5.000	0	99.3	90	110					

Sample ID	N025313-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882		
Client ID:	ZZZZZZ	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721677		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		535.110	20						539.9	0.889	20		

Sample ID	N025313-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882		
Client ID:	ZZZZZZ	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721678		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		1045.530	20	500.0	539.9	101	90	110					

Sample ID	N025313-002AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882		
Client ID:	ZZZZZZ	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721679		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		1042.120	20	500.0	539.9	100	90	110	1046	0.327	20		

Qualifiers:

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

Calculations are based on raw values

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170803B**	QC Batch: **R116837**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	8/3/2017 08:10 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170803B**	QC Batch: **R116837**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	8/3/2017 08:10 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R116837**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **LCSW**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	96.074	5.0	100.0	0	96.1	85	115				

Sample ID **MB-R116837**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **PBW**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719434**

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

Sample ID **N025313-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **ZZZZZZ**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	212.810	5.0						216.9	1.92	30	

Sample ID **N025313-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **ZZZZZZ**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	233.471	5.0	100.0	144.6	88.8	75	125				

Sample ID **N025313-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **ZZZZZZ**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	231.405	5.0	100.0	144.6	86.8	75	125	233.5	0.889	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **NV00922-IC8_170803A** QC Batch: **R116885**				PrepDate			Analyst: **RAB**
Chloride	1000	1.8	100		mg/L	200	8/3/2017 10:27 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **NV00922-IC8_170803A** QC Batch: **R116885**				PrepDate			Analyst: **RAB**
Sulfate	370	1.1	25		mg/L	50	8/3/2017 11:43 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170803A**	QC Batch: **R116885**			PrepDate			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	8/3/2017 11:13 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170803A**	QC Batch: **R116885**			PrepDate			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	8/3/2017 01:00 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R116885_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	PBW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721729		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	ND	0.50											

Sample ID	LCS-R116885_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	LCSW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721730		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	1.986	0.50	2.000	0	99.3	90	110						

Sample ID	N025313-001CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721732		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	1469.820	100	400.0	1048	105	80	120						

Sample ID	N025313-001CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721733		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	1464.160	100	400.0	1048	104	80	120	1470	0.386	20			

Sample ID	N025313-002CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721735		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	2201.450	250						2196	0.243	20			

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R116885_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	PBW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721744

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

Sample ID	LCS-R116885_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	LCSW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721745

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.904	0.50	4.000	0	97.6	90	110				

Sample ID	N025313-001CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721747

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	571.785	25	200.0	368.2	102	80	120				

Sample ID	N025313-001CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721748

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	569.375	25	200.0	368.2	101	80	120	571.8	0.422	20	

Sample ID	N025313-002CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721752

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	503.515	25						508.9	1.06	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170815A**	QC Batch: **R117105**			PrepDate			Analyst: **RB**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	8/15/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170815A**	QC Batch: **R117105**			PrepDate			Analyst: **RB**
Nitrate/Nitrite as N	2.9	0.11	0.25		mg/L	5	8/15/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117105	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117105
Client ID:	PBW	Batch ID:	R117105	TestNo:	SM4500-NO3			Analysis Date:	8/15/2017	SeqNo:	2733100

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

Sample ID	LCS-R117105	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117105
Client ID:	LCSW	Batch ID:	R117105	TestNo:	SM4500-NO3			Analysis Date:	8/15/2017	SeqNo:	2733101

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.504	0.050	0.5000	0	101	85	115				

Sample ID	N025313-002DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117105
Client ID:	ZZZZZZ	Batch ID:	R117105	TestNo:	SM4500-NO3			Analysis Date:	8/15/2017	SeqNo:	2733104

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.280	0.25						2.924	11.4	20	

Sample ID	N025313-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117105
Client ID:	ZZZZZZ	Batch ID:	R117105	TestNo:	SM4500-NO3			Analysis Date:	8/15/2017	SeqNo:	2733105

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.171	0.25	2.500	2.924	89.8	75	125				

Sample ID	N025313-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117105
Client ID:	ZZZZZZ	Batch ID:	R117105	TestNo:	SM4500-NO3			Analysis Date:	8/15/2017	SeqNo:	2733106

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.169	0.25	2.500	2.924	89.8	75	125	5.171	0.0387	20	

Qualifiers:

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

ASSET LABORATORIES
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓ (Specify: RWQCB); Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 3; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200	Fax:
Title: Sample tech	Phone: 916-786-3302 Fax:		Sample Temp: 3.1
Signature: Date: 8/2/17	Sampled By: Nara Tep		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - PMP	Signature: Date: 8/2/17		
Project Number: RC000753.801B			

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

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (SM3500-CrB) (NH4)2, SO4, NH4, OH 250 mL poly	Dissolved metals (SW6020A) FF; HNO3, 500 mL poly Cr 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, Mn, Fe, Na 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 1 L poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025313 - 01	PE-01-0817	8/2/17	0750		X		X	X			X	X	X	X	X		X	m	4	P	BN	
2	- 02	TW-03D-0817	↓	0800			X	X	X			X	X	X	X	X		X	m	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tep	8/2/17 1320	[illegible]	8/2/17 1320
[illegible]	8/2/17 1536	[illegible]	8/2/17 1536
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

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

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

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

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On: 8/2/2017 Workorder: N025313

Rep sample Temp (Deg C): 3.1 IR Gun ID: 2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

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

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

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ~~☑~~	No ~~☐~~	8/15/2017
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login? 8/15/2017	Yes ~~☑~~	No ☐	NA ~~☑~~
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Sample for pH was past HT upon receipt. 8/15/2017

Checklist Completed By MBC 8/7/2017

Reviewed By: 8/15/2017

ASSET Laboratories

WORK ORDER Summary

03-Aug-17

WorkOrder: N025313

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 8/2/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025313-001A	PE-01-0817	8/2/2017 7:50:00 AM	8/16/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025313-001B			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025313-001C			8/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/16/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/16/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/16/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/16/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025313-001D			8/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025313-002A	TW-03D-0817	8/2/2017 8:00:00 AM	8/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025313-002B			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025313-002C			8/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

03-Aug-17

WorkOrder: N025313

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 8/2/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025313-002C	TW-03D-0817	8/2/2017 8:00:00 AM	8/16/2017	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			8/16/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/16/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/16/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025313-002D			8/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025313-003A	FOLDER	8/16/2017	8/16/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/16/2017		Folder	Folder	☐	☐	☐	LAB
			8/16/2017		Folder	Folder	☐	☐	☐	LAB

ASSET LV Sample Control

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Thursday, August 03, 2017 12:59 PM
To: ASSET LV Sample Control; Bush, Dan; Dan Moore; Marlon B. Cartin; nancy@assetlaboratories.com; fernando@assetlaboratories.com
Cc: Tina Rice; Kalib Sumter; Serna, Erica; Madsen, Laura
Subject: RE: N025313 COC and Work Order Summary for Samples Received 8/2/2017

Hi Marlon,
There were a couple of mistakes on the COC.

Can you change the dissolved metals method from 6010/6020 to 200.7/200.8, respectively?

Can you change the Cr6 method to 218.6?

Thanks
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Thursday, August 3, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Bloes, Marty <mbloes@pivox.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>
Subject: N025313 COC and Work Order Summary for Samples Received 8/2/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 8/2/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer



ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
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ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801B

ASSET Laboratories Work Order:

N025313

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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August 18, 2017

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

TEL: (916) 786-3302
FAX:

Workorder No.: N025313

RE: PG&E Topock - PMP, RC000753.801B

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 02, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025313

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

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

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Sodium in QC sample N025313-002B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N025284-001C-MS and N025284-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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

ASSET Laboratories

Date: *18-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025313
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025313-001A	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-001B	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-001C	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-001D	PE-01-0817	Groundwater	8/2/2017 7:50:00 AM	8/2/2017	8/18/2017
N025313-002A	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017
N025313-002B	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017
N025313-002C	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017
N025313-002D	TW-03D-0817	Groundwater	8/2/2017 8:00:00 AM	8/2/2017	8/18/2017

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170803D**	QC Batch: **R116839**			PrepDate			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	8/3/2017 10:40 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170803D**	QC Batch: **R116839**			PrepDate			Analyst: **LR**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	8/3/2017 10:40 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N025313-002CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:					RunNo: **116839**	
Client ID: **ZZZZZZ**	Batch ID: **R116839**	TestNo: **EPA 120.1**		Analysis Date: **8/3/2017**					SeqNo: **2721451**	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7320.000	0.10						7290	0.411	10	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170802C**	QC Batch: **R116826**			PrepDate			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	8/2/2017 04:15 PM
Temp. at time of pH Analysis	18	0.10	0.10	H	°C	1	8/2/2017 04:15 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170802C**	QC Batch: **R116826**			PrepDate			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	8/2/2017 04:15 PM
Temp. at time of pH Analysis	21	0.10	0.10	H	°C	1	8/2/2017 04:15 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025313-002CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **116826**
Client ID: **ZZZZZZ** Batch ID: **R116826** TestNo: **SM4500-H+B** Analysis Date: **8/2/2017** SeqNo: **2719261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.480	0.10						7.470	0.134	10	H
Temp. at time of pH Analysis	20.100	0.10						20.70	2.94	10	H

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170803J**	QC Batch: **63197**				PrepDate	**8/3/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2400	25	25		mg/L	1	8/3/2017 01:36 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170803J**	QC Batch: **63197**				PrepDate	**8/3/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4000	50	50		mg/L	1	8/3/2017 01:36 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-63197**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **8/3/2017**	RunNo: **116875**
Client ID: **LCSW**	Batch ID: **63197**	TestNo: **SM2540C**		Analysis Date: **8/3/2017**	SeqNo: **2721530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	954.000	10	1000	0	95.4	80	120				

Sample ID **MB-63197**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **8/3/2017**	RunNo: **116875**
Client ID: **PBW**	Batch ID: **63197**	TestNo: **SM2540C**		Analysis Date: **8/3/2017**	SeqNo: **2721531**

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

Sample ID **N025313-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **8/3/2017**	RunNo: **116875**
Client ID: **ZZZZZZ**	Batch ID: **63197**	TestNo: **SM2540C**		Analysis Date: **8/3/2017**	SeqNo: **2721534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4055.000	50						3975	1.99	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170810D**	QC Batch: **63260**				PrepDate	**8/10/2017**	Analyst: **CEI**
Calcium	130000	28	500		µg/L	1	8/10/2017 08:35 PM
Iron	130	1.8	20		µg/L	1	8/10/2017 08:35 PM
Magnesium	31000	4.4	100		µg/L	1	8/10/2017 08:35 PM
Sodium	660000	290	12000		µg/L	25	8/11/2017 08:08 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170810D**	QC Batch: **63260**				PrepDate	**8/10/2017**	Analyst: **CEI**
Calcium	190000	28	500		µg/L	1	8/10/2017 08:40 PM
Iron	ND	1.8	20		µg/L	1	8/10/2017 08:40 PM
Magnesium	26000	4.4	100		µg/L	1	8/10/2017 08:40 PM
Sodium	1400000	580	25000		µg/L	50	8/11/2017 08:11 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-63260** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **PBW** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	14.692	20									
Magnesium	21.826	100									

Sample ID **LCS1-63260** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **LCSW** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9843.543	500	10000	0	98.4	85	115				
Iron	112.354	20	100.0	0	112	85	115				
Magnesium	10313.738	100	10000	0	103	85	115				

Sample ID **N025284-002E-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **ZZZZZZ** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	105546.272	500	10000	94890	107	75	125				
Iron	111.071	20	100.0	14.49	96.6	75	125				
Magnesium	34698.861	100	10000	25940	87.6	75	125				

Sample ID **N025284-002E-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **8/10/2017** RunNo: **117022**
Client ID: **ZZZZZZ** Batch ID: **63260** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	105458.223	500	10000	94890	106	75	125	105500	0.0835	20	
Iron	109.686	20	100.0	14.49	95.2	75	125	111.1	1.25	20	
Magnesium	34893.842	100	10000	25940	89.6	75	125	34700	0.560	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-63260	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052	
Client ID:	PBW	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730636	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		ND	500									

Sample ID	LCS2-63260	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052	
Client ID:	LCSW	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730637	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		20555.966	500	20000	0	103	85	115				

Sample ID	N025313-002B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052	
Client ID:	ZZZZZZ	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730644	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		1473534.813	25000	20000	1449000	123	75	125				

Sample ID	N025313-002B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	8/10/2017	RunNo:	117052	
Client ID:	ZZZZZZ	Batch ID:	63260	TestNo:	EPA 200.7			Analysis Date:	8/11/2017	SeqNo:	2730645	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		1475186.652	25000	20000	1449000	131	75	125	1474000	0.112	20	S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_170809B** QC Batch: **63208** PrepDate **8/8/2017** Analyst: **CEI**							
Manganese	150	0.056	0.50		µg/L	1	8/9/2017 03:06 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B**	QC Batch: **63208**			PrepDate	**8/8/2017**		Analyst: **CEI**
Manganese	8.6	0.056	0.50		µg/L	1	8/9/2017 12:42 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-63208** SampType: **MBLK** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **8/8/2017** RunNo: **116975**
Client ID: **PBW** Batch ID: **63208** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Sample ID **LCS-63208** SampType: **LCS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **8/8/2017** RunNo: **116975**
Client ID: **LCSW** Batch ID: **63208** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.984	1.0	10.00	0	99.8	85	115				
Manganese	101.670	0.50	100.0	0	102	85	115				

Sample ID **N025284-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **8/8/2017** RunNo: **116975**
Client ID: **ZZZZZZ** Batch ID: **63208** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	110.726	0.50	100.0	20.62	90.1	75	125				

Sample ID **N025284-001C-MS** SampType: **MS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **8/8/2017** RunNo: **116975**
Client ID: **ZZZZZZ** Batch ID: **63208** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	434.196	5.0	10.00	438.4	-41.7	75	125				S

Sample ID **N025284-001C-MSD** SampType: **MSD** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: **8/8/2017** RunNo: **116975**
Client ID: **ZZZZZZ** Batch ID: **63208** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	111.145	0.50	100.0	20.62	90.5	75	125	110.7	0.378	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	N025284-001C-MSD	SampType:	MSD	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726110

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	436.623	5.0	10.00	438.4	-17.4	75	125	434.2	0.558	20	S

Sample ID	N025352-002H-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726137

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.735	1.0	10.00	0	87.3	75	125				

Sample ID	N025352-002H-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726138

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	281.760	2.5	100.0	185.8	96.0	75	125				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170803A**	QC Batch: **R116845**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/3/2017 11:16 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B**	QC Batch: **63208**			PrepDate	**8/8/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/9/2017 03:06 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170804A** QC Batch: **R116882**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	540	3.3	20		µg/L	100	8/4/2017 10:34 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170809B** QC Batch: **63208**				PrepDate	**8/8/2017**		Analyst: **CEI**
Chromium	520	0.096	5.0		µg/L	5	8/9/2017 12:47 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-63208	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975		
Client ID:	PBW	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727032		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium		ND	1.0										

Sample ID	LCS-63208	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975		
Client ID:	LCSW	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727033		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium		9.984	1.0	10.00	0	99.8	85	115					

Sample ID	N025284-001C-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975		
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727040		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium		434.196	5.0	10.00	438.4	-41.7	75	125				S	

Sample ID	N025284-001C-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975		
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727044		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium		436.623	5.0	10.00	438.4	-17.4	75	125	434.2	0.558	20	S	

Sample ID	N025352-002H-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	8/8/2017	RunNo:	116975		
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727071		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium		8.735	1.0	10.00	0	87.3	75	125					

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R116845	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845		
Client ID:	PBW	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719423		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		ND	0.20										

Sample ID	LCS-R116845	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845		
Client ID:	LCSW	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719424		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		4.980	0.20	5.000	0	99.6	90	110					

Sample ID	N025313-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845		
Client ID:	ZZZZZZ	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719426		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		1.006	0.20	1.000	0	101	90	110					

Sample ID	N025313-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845		
Client ID:	ZZZZZZ	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719427		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		0.979	0.20	1.000	0	97.9	90	110	1.006	2.76	20		

Sample ID	N025254-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116845		
Client ID:	ZZZZZZ	Batch ID:	R116845	TestNo:	EPA 218.6			Analysis Date:	8/3/2017	SeqNo:	2719429		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium		192.598	4.0						192.9	0.136	20		

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R116882	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882	
Client ID:	PBW	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721674	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		ND	0.20									

Sample ID	LCS-R116882	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882	
Client ID:	LCSW	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721675	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		4.965	0.20	5.000	0	99.3	90	110				

Sample ID	N025313-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882	
Client ID:	ZZZZZZ	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721677	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		535.110	20						539.9	0.889	20	

Sample ID	N025313-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882	
Client ID:	ZZZZZZ	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721678	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1045.530	20	500.0	539.9	101	90	110				

Sample ID	N025313-002AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	116882	
Client ID:	ZZZZZZ	Batch ID:	R116882	TestNo:	EPA 218.6			Analysis Date:	8/4/2017	SeqNo:	2721679	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1042.120	20	500.0	539.9	100	90	110	1046	0.327	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170803B**	QC Batch: **R116837**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	8/3/2017 08:10 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170803B**	QC Batch: **R116837**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	8/3/2017 08:10 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R116837**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **LCSW**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	96.074	5.0	100.0	0	96.1	85	115				

Sample ID **MB-R116837**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **PBW**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719434**

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

Sample ID **N025313-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **ZZZZZZ**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	212.810	5.0						216.9	1.92	30	

Sample ID **N025313-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **ZZZZZZ**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	233.471	5.0	100.0	144.6	88.8	75	125				

Sample ID **N025313-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **116837**
Client ID: **ZZZZZZ**	Batch ID: **R116837**	TestNo: **SM 2320 B**		Analysis Date: **8/3/2017**	SeqNo: **2719440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	231.405	5.0	100.0	144.6	86.8	75	125	233.5	0.889	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-001

Client Sample ID: PE-01-0817
Collection Date: 8/2/2017 7:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170803A** QC Batch: **R116885**				PrepDate			Analyst: **RAB**
Chloride	1000	1.8	100		mg/L	200	8/3/2017 10:27 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170803A** QC Batch: **R116885**				PrepDate			Analyst: **RAB**
Sulfate	370	1.1	25		mg/L	50	8/3/2017 11:43 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025313
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025313-002

Client Sample ID: TW-03D-0817
Collection Date: 8/2/2017 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170803A**	QC Batch: **R116885**			PrepDate			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	8/3/2017 11:13 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170803A**	QC Batch: **R116885**			PrepDate			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	8/3/2017 01:00 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R116885_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	PBW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721729		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	ND	0.50											

Sample ID	LCS-R116885_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	LCSW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721730		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	1.986	0.50	2.000	0	99.3	90	110						

Sample ID	N025313-001CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721732		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	1469.820	100	400.0	1048	105	80	120						

Sample ID	N025313-001CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721733		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	1464.160	100	400.0	1048	104	80	120	1470	0.386	20			

Sample ID	N025313-002CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	116885		
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721735		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloride	2201.450	250						2196	0.243	20			

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R116885_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	PBW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721744

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

Sample ID	LCS-R116885_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	LCSW	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721745

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.904	0.50	4.000	0	97.6	90	110				

Sample ID	N025313-001CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721747

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	571.785	25	200.0	368.2	102	80	120				

Sample ID	N025313-001CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721748

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	569.375	25	200.0	368.2	101	80	120	571.8	0.422	20	

Sample ID	N025313-002CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	116885
Client ID:	ZZZZZZ	Batch ID:	R116885	TestNo:	EPA 300.0			Analysis Date:	8/3/2017	SeqNo:	2721752

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	503.515	25						508.9	1.06	20	

Qualifiers:

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

Calculations are based on raw values

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 7:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170815A**	QC Batch: **R117105**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	8/15/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0817
Lab Order:	N025313	**Collection Date:**	8/2/2017 8:00:00 AM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025313-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170815A**	QC Batch: **R117105**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	2.9	0.11	0.25		mg/L	5	8/15/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R117105	**MBLK**	**4500N03F_W**	**mg/L**		**117105**
Client ID: **PBW**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733100**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R117105	**LCS**	**4500N03F_W**	**mg/L**		**117105**
Client ID: **LCSW**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.504	0.050	0.5000	0	101	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025313-002DDUP	**DUP**	**4500N03F_W**	**mg/L**		**117105**
Client ID: **ZZZZZZ**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.280	0.25						2.924	11.4	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025313-002DMS	**MS**	**4500N03F_W**	**mg/L**		**117105**
Client ID: **ZZZZZZ**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.171	0.25	2.500	2.924	89.8	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025313-002DMSD	**MSD**	**4500N03F_W**	**mg/L**		**117105**
Client ID: **ZZZZZZ**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.169	0.25	2.500	2.924	89.8	75	125	5.171	0.0387	20	

Qualifiers:

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

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓ (Specify: RWQCB); Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Sample Temp: 3.1 °C
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200 Fax:	
Title: Sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 8/2/17	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - PMP	Signature: Date: 8/2/17		
Project Number: RC000753.801B			

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

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (SM3500-CrB) (NH4)2, SO4, NH4, OH 250 mL poly	Dissolved metals (SW6020A) FF; HNO3, 500 mL poly Cr 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, Mn, Fe, Na 1 L poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 1 L poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025313 - 01	PE-01-0817	8/2/17	0750		X		X	X			X	X	X	X	X		X	m	4	P	BN	
2	- 02	TW-03D-0817	↓	0800			X	X	X			X	X	X	X	X		X	m	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Courier:
Tracking No.:

Relinquished by (Signature and Printed Name): Nara Tep	Date/Time: 8/2/17 1320	Received by (Signature and Printed Name): Dung Lang
Relinquished by (Signature and Printed Name): Dung Lang	Date/Time: 8/2/17 1536	Received by (Signature and Printed Name): Dung Lang
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):

Turn Around Time (TAT)

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

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

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

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On: 8/2/2017 Workorder: N025313

Rep sample Temp (Deg C): 3.1 IR Gun ID: 2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

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

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

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ~~☑~~	No ~~☐~~	8/15/2017
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login? 8/15/2017	Yes ~~☑~~	No ☐	NA ~~☑~~
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Sample for pH was past HT upon receipt. 8/15/2017

Checklist Completed By MBC 8/7/2017

Reviewed By: 8/15/2017

ASSET LV Sample Control

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Thursday, August 03, 2017 12:59 PM
To: ASSET LV Sample Control; Bush, Dan; Dan Moore; Marlon B. Cartin; nancy@assetlaboratories.com; fernando@assetlaboratories.com
Cc: Tina Rice; Kalib Sumter; Serna, Erica; Madsen, Laura
Subject: RE: N025313 COC and Work Order Summary for Samples Received 8/2/2017

Hi Marlon,
There were a couple of mistakes on the COC.

Can you change the dissolved metals method from 6010/6020 to 200.7/200.8, respectively?

Can you change the Cr6 method to 218.6?

Thanks
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Thursday, August 3, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Bloes, Marty <mbloes@pivox.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>
Subject: N025313 COC and Work Order Summary for Samples Received 8/2/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 8/2/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

ASSET Laboratories

WORK ORDER Summary

03-Aug-17

WorkOrder: N025313

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 8/2/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025313-001A	PE-01-0817	8/2/2017 7:50:00 AM	8/16/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025313-001B			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025313-001C			8/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/16/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/16/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/16/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/16/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025313-001D			8/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025313-002A	TW-03D-0817	8/2/2017 8:00:00 AM	8/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025313-002B			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/16/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			8/16/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025313-002C			8/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

03-Aug-17

WorkOrder: N025313

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 8/2/2017

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025313-002C	TW-03D-0817	8/2/2017 8:00:00 AM	8/16/2017	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			8/16/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			8/16/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			8/16/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			8/16/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025313-002D			8/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025313-003A	FOLDER	8/16/2017	8/16/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/16/2017		Folder	Folder	☐	☐	☐	LAB
			8/16/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N025313**

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

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116839 **Analyst:** LSR

ASSET #: N025313 **Date Analyzed:** 8/3/2017

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Julia Ramit Date: 8/7/2017

2nd Level Reviewer Date: 08/15/2017

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 8/2/17 1355 LSR
Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 µS/cm	CINV-170620B	9.28 µS/cm @ 25.2°C	% Rec: (90-110%)
1411	170329B	1420 @ 25.3°C	
10003	170329A	9930 @ 25.3°C	
99582	170329C	99100 @ 25.3°C	

	Sample ID	Matrix	Reading	Comments
1	N025299-001A	H_2O	3620 @ 27.2°C	
2	1A DUP		3630 @ 27.1°C	
3				
4				
5				
6				
7				
8	1413 µS/cm	CINV-170125F	1442 @ 27.2°C	
9	10000	170125E	10120 @ 27.2°C	
10	99899	170403A	99900 @ 27.2°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 8/3/17 1040
Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 µS/cm	CINV-170620B	9.21 µS/cm @ 27.3°C	% Rec: (90-110%)
1411	170329B	1414 @ 27.3°C	
10003	170329A	9920 @ 27.3°C	
99582	170329C	99700 @ 27.3°C	

	Sample ID	Matrix	Reading	Comments
1	N025313-001C	H_2O	3940 @ 24.4°C	
2	2C		7290 @ 24.2°C	
3	2C DUP		7320 @ 24.0°C	
4				
5				
6				Julia Ramit 8/7/2017
7				
8	1413 µS/cm	CINV-170125F	1462 µS/cm @ 26.6°C	
9	10000	170125E	10250 @ 26.5°C	
10	99899	170403A	101300 @ 27.0°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116826 **Instrument ID:** pH meter

ASSET #: N025313 **Analyst:** LSR

Date Analyzed: 2-Aug

Method: EPA 150.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Silvia Ramit Date: 8/4/2017

2nd Level Reviewer: [signature] Date: 08/15/2017

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 8/2/17 1615

Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CIW-170125C	7.03 @ 25.9°C	SLOPE: 99.1%
Buffer 4	170125B	4.02 @ 25.9°C	
Buffer 10	170331A	10.01 @ 25.8°C	

	Sample ID	Matrix	pH	Comments
1	NO25313-001C	H2O	7.23 @ 18.0°C	
2	2C	"	7.47 @ 26.7°C	
3	2C DUP	"	7.48 @ 20.1°C	
4				
5				
6				
7				
8			Julia Ramit	8/4/2017
9				
10				Accept: 10% water, 20% soil
Dup				Accept: +/-0.1 pH units from expected value
	Buffer (7), 4, 10 (Circle one)	CIW-170125D	6.99 @ 27.4°C	

Date: 8/3/17 1025

Analyst: LSK

Standard	Std ID	pH	Comments
Buffer 7	CIW-170125C	7.01 @ 24.7°C	SLOPE: 99.1%
Buffer 4	170125B	4.02 @ 24.8°C	
Buffer 10	170331A	10.03 @ 24.7°C	

	Sample ID	Matrix	pH	Comments
1	NO25316-001A	Soil	9.77 @ 25.1°C	LIMITED SAMPLE
2	1A DUP	"	9.72 @ 25.1°C	
3				
4				
5				
6				
7				
8				
9				
10				Accept: 10% water, 20% soil
Dup				Accept: +/-0.1 pH units from expected value
	Buffer (7), 4, 10 (Circle one)	CIW-170510A	6.95 @ 26.0°C	

Logbook #11

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63197 **Analyst:** LSR

ASSET #: N025313 **Date Analyzed:** 8/3/2017

Method: EPA 160.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 8/7/2017

2nd Level Reviewer: 8/18/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

Where:

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

For **N025313-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.2333 - 59.1374)*1000000}{40}$$
$$= 2397.5 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 2400 mg/L

Julia Ramit 8/7/2017

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/3/2017 1:36:08 P**
Prep End Date: **8/4/2017 10:00:00 A**
Reviewed/ Date: Mary 8/18/2017
Initials/ Date: Lilia Ramit 8/7/2017
Prep Batch **63197** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63197	Water		100	☐	0	0	100	1.000		
MB-63197	Water		100	☐	0	0	100	1.000		
N025313-001C	Groundwater		40	☐	0	0	100	2.500		
N025313-002C	Groundwater		20	☐	0	0	100	5.000		
N025313-002C-DU	Groundwater		20	☐	0	0	100	5.000		
N025318-001A	Groundwater		20	☐	0	0	100	5.000		

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

Number	Reagent Name
9131	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170727A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/3/2017 1:36:08 P**
Prep End Date:

Reviewed/ Date:
Initials/ Date: Lilia Ramit 8/7/2017

Prep Batch **63197** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63197	Water	IWST 170727A	100	☐	0	0	100	1.000		
MB-63197	Water		100	☐	0	0	100	1.000		
N025313-001C	Groundwater	3940	100 /40	☐	0	0	100	1.000		
N025313-002C	Groundwater	7290	100 /20	☐	0	0	100	1.000		
N025313-002C-DU	Groundwater	1	100 /20	☐	0	0	100	1.000		
N025318-001A	Groundwater	5210	100 /20	☐	0	0	100	1.000		

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

9B1

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST : TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8/3/17 1336 LI	MB 63197	100	74.6569 74.6571	74.6576 74.6575	
L2	LCS 63197	100	76.7146 76.7148	76.8099 76.8102	
MA	NO25318-001C	40	59.1371 59.1374	59.2329 59.2333	
1K	2L	20	62.4444 62.4444	62.5235 62.5239	
1B	2L DUP	20	59.5995 59.5997	59.6806 59.6809	
1S	NO25318-001A	20	61.5885 61.5884	61.6846 61.6843	
Julia Ramit	8/7/2017				

ASSET LABORATORIES
CALIFORNIA ELAP Cert 2923
NEVADA ELAP Cert 2007

TOTAL DISSOLVED SOLIDS, TDS

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

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

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
8/4/2017									
MB-63197	100	74.6571	74.6575	4	1	4			MBLK
LCS-63197	100	76.7148	76.8102	954	1	954			LCS
N025313-001C	40	59.1374	59.2333	959	2.5	2397.5	3940	0.609	SAMP
N025313-002C	20	62.4444	62.5239	795	5	3975	7290	0.545	SAMP
N025313-002CDUP	20	59.5997	59.6808	811	5	4055	7290	0.556	DUP
N025318-001A	20	61.5884	61.6843	959	5	4795	5210	0.920	SAMP

Silvia Ramit 8/7/2017

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (CH2MHILL)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63260
ASSET #: N025313

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/10/2017

Method:

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

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

Comments:

Dilution tes failed for Mg. However, PS passed criteria.

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

1st Level Reviewer CEI 8/17/2017 Date: _____

2nd Level Reviewer [signature] 8/17/2017 Date: _____

Metals Technical Batch Review Checklist (CH2MHILL)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63260
ASSET #: N025313

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/11/2017

Method:

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

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

Comments:

~~%Rec of Al, Ca, Fe and Mg in ICSA1 and ICSA2 failed. However, analytes are not required.~~

%Rec of Na in N025313-002B MSD failed, high bias. However, LCS passed criteria.

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

1st Level Reviewer CEI 8/17/2017 Date: _____

2nd Level Reviewer [signature] 8/17/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 200.7
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

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

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

where:

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

For Sample **N025313-001B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.12775 * 1 * (25/25) * 1000

Iron , ug/L = 127.75

Reporting results in two significant figures,

Iron , ug/L = 130

% RSD SUMMARY

RSD SUMMARY: 170810C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	11.23	15	PASS
Standard1	ICAL	1	Ca	0.2	20.13	15	<PQL
Standard2	ICAL	1	Ca	1	4.99	15	PASS
Standard3	ICAL	1	Ca	2	2.7	15	PASS
Standard4	ICAL	1	Ca	5	0.74	15	PASS
Standard5	ICAL	1	Ca	7.5	0.42	15	PASS
Standard6	ICAL	1	Ca	10	0.87	15	PASS
Standard7	ICAL	1	Ca	20	0.37	15	PASS
ICV	ICV	1	Ca	10.15	0.9	15	PASS
ICB	ICB	1	Ca	-0.031	21.19	15	<PQL
LLICV1	CCV1	1	Ca	0.19	5.99	20	PASS
ICSA1	ICSA	1	Ca	480.94	0.29	15	PASS
ICSAB1	ICSAB	1	Ca	537.74	0.63	15	PASS
MB-63260	MBLK	1	Ca	-0.01	410.14	15	<PQL
LCS1-63260	LCS	1	Ca	9.84	1.007	15	PASS
N025284-002E	SAMP	1	Ca	94.89	0.47	15	PASS
N025284-002E	SAMP	5	Ca	19.18	0.47	15	PASS
N025284-002E-PS	PS	1	Ca	106.12	0.27	15	PASS
N025284-002E-MS1	MS	1	Ca	105.55	0.44	15	PASS
N025284-002E-MSD1	MSD	1	Ca	105.46	0.56	15	PASS
N025313-001B	SAMP	1	Ca	134.9	1.06	15	PASS
N025313-002B	SAMP	1	Ca	185.62	0.17	15	PASS
CCV1	CCV	1	Ca	10.091	0.27	15	PASS
CCB1	CCB	1	Ca	-0.052	63.95	15	<PQL
CCV2	CCV	1	Ca	10.055	0.5	15	PASS
CCB2	CCB	1	Ca	-0.049	105.3	15	<PQL
CCV3	CCV	1	Ca	9.98	1.28	15	PASS
CCB3	CCB	1	Ca	-0.061	55.55	15	<PQL
LLCCV1	CCV2	1	Ca	0.18	11.046	20	PASS
ICSA2	ICSA	1	Ca	484.33	0.47	15	PASS
ICSAB2	ICSAB	1	Ca	530.31	0.45	15	PASS
ICSA2	ICSA	1	Ca	479.9	0.79	15	PASS
ICSAB2	ICSAB	1	Ca	533.77	0.58	15	PASS
CalBlk	IBLK	1	Fe	0	12.98	15	PASS
Standard1	ICAL	1	Fe	0.02	4.65	15	PASS
Standard2	ICAL	1	Fe	0.05	1.6	15	PASS
Standard3	ICAL	1	Fe	2	0.49	15	PASS
Standard4	ICAL	1	Fe	5	0.02	15	PASS
Standard5	ICAL	1	Fe	7.5	0.95	15	PASS
Standard6	ICAL	1	Fe	10	0.14	15	PASS
Standard7	ICAL	1	Fe	20	0.19	15	PASS
ICV	ICV	1	Fe	10.031	0.23	15	PASS

RSD SUMMARY: 170810C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICB	ICB	1	Fe	0.0033	103.21	15	<PQL
LLICV1	CCV1	1	Fe	0.021	5.42	20	PASS
ICSA1	ICSA	1	Fe	170.41	0.21	15	PASS
ICSAB1	ICSAB	1	Fe	184.09	0.11	15	PASS
MB-63260	MBLK	1	Fe	0.015	29.54	15	<PQL
LCS1-63260	LCS	1	Fe	0.11	1.74	15	PASS
N025284-002E	SAMP	1	Fe	0.014	2.0061	15	PASS
N025284-002E	SAMP	5	Fe	0.0014	20.21	15	<PQL
N025284-002E-PS	PS	1	Fe	0.11	1.075	15	PASS
N025284-002E-MS1	MS	1	Fe	0.11	0.79	15	PASS
N025284-002E-MSD1	MSD	1	Fe	0.11	0.14	15	PASS
N025313-001B	SAMP	1	Fe	0.13	1.47	15	PASS
N025313-002B	SAMP	1	Fe	-0.00093	30.9	15	<PQL
CCV1	CCV	1	Fe	10.024	0.29	15	PASS
CCB1	CCB	1	Fe	-0.002	80.72	15	<PQL
CCV2	CCV	1	Fe	9.98	0.13	15	PASS
CCB2	CCB	1	Fe	-0.0035	33.97	15	<PQL
CCV3	CCV	1	Fe	10.066	0.092	15	PASS
CCB3	CCB	1	Fe	-0.0029	33.9	15	<PQL
LLCCV1	CCV2	1	Fe	0.018	4.67	20	PASS
ICSA2	ICSA	1	Fe	171.49	0.072	15	PASS
ICSAB2	ICSAB	1	Fe	185.05	0.047	15	PASS
ICSA2	ICSA	1	Fe	170.56	0.14	15	PASS
ICSAB2	ICSAB	1	Fe	184.46	0.19	15	PASS
CalBlk	IBLK	1	Mg	0	5.64	15	PASS
Standard1	ICAL	1	Mg	0.1	0.6	15	PASS
Standard2	ICAL	1	Mg	1	0.26	15	PASS
Standard3	ICAL	1	Mg	2	0.64	15	PASS
Standard4	ICAL	1	Mg	5	0.12	15	PASS
Standard5	ICAL	1	Mg	7.5	0.95	15	PASS
Standard6	ICAL	1	Mg	10	1.46	15	PASS
Standard7	ICAL	1	Mg	20	0.22	15	PASS
ICV	ICV	1	Mg	10.37	0.39	15	PASS
ICB	ICB	1	Mg	0.00029	30.71	15	<PQL
LLICV1	CCV1	1	Mg	0.11	1.3	20	PASS
ICSA1	ICSA	1	Mg	466.39	0.22	15	PASS
ICSAB1	ICSAB	1	Mg	515	0.074	15	PASS
MB-63260	MBLK	1	Mg	0.022	9.15	15	PASS
LCS1-63260	LCS	1	Mg	10.31	0.35	15	PASS
N025284-002E	SAMP	1	Mg	25.93	0.14	15	PASS
N025284-002E	SAMP	5	Mg	5.8	1.13	15	PASS
N025284-002E-PS	PS	1	Mg	35.3	0.25	15	PASS

RSD SUMMARY: 170810C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N025284-002E-MS1	MS	1	Mg	34.7	0.2	15	PASS
N025284-002E-MSD1	MSD	1	Mg	34.89	0.26	15	PASS
N025313-001B	SAMP	1	Mg	30.54	0.15	15	PASS
N025313-002B	SAMP	1	Mg	25.88	0.2	15	PASS
CCV1	CCV	1	Mg	10.35	0.41	15	PASS
CCB1	CCB	1	Mg	0.00047	109.37	15	<PQL
CCV2	CCV	1	Mg	10.27	0.62	15	PASS
CCB2	CCB	1	Mg	0.00069	26.79	15	<PQL
CCV3	CCV	1	Mg	10.46	0.72	15	PASS
CCB3	CCB	1	Mg	0.00087	55.68	15	<PQL
LLCCV1	CCV2	1	Mg	0.12	1.68	20	PASS
ICSA2	ICSA	1	Mg	471.8	0.084	15	PASS
ICSAB2	ICSAB	1	Mg	522.34	0.11	15	PASS
ICSA2	ICSA	1	Mg	468.14	0.2	15	PASS
ICSAB2	ICSAB	1	Mg	518.8	0.32	15	PASS

RSD SUMMARY: 170811B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0	8.91	15	PASS
Standard1	ICAL	1	Na	0.1	5.87	15	PASS
Standard2	ICAL	1	Na	1	1.5	15	PASS
Standard3	ICAL	1	Na	5	0.18	15	PASS
Standard4	ICAL	1	Na	10	0.55	15	PASS
Standard5	ICAL	1	Na	20	0.23	15	PASS
Standard6	ICAL	1	Na	40	0.41	15	PASS
ICV	ICV	1	Na	10.27	0.64	15	PASS
ICB	ICB	1	Na	-0.037	18.24	15	<PQL
ICSA0	ICSA	1	Na	-0.035	16.81	15	<PQL
ICSAB0	ICSAB	1	Na	9.17	0.22	15	PASS
MB-63260	MBLK	1	Na	-0.039	12.17	15	PASS
LCS2-63260	LCS	1	Na	20.56	0.53	15	PASS
N025313-001B	SAMP	1	Na	634.06	1.067	15	PASS
N025313-002B	SAMP	1	Na	1315.9	1.64	15	PASS
N025313-001B	SAMP	25	Na	26.46	0.13	15	PASS
N025313-002B	SAMP	50	Na	28.98	0.096	15	PASS
N025313-002B	SAMP	250	Na	5.84	0.13	15	PASS
N025313-002B-PS	PS	50	Na	29.63	0.064	15	PASS
N025313-002B-MS	MS	50	Na	29.47	0.31	15	PASS
N025313-002B-MSD	MSD	50	Na	29.5	0.4	15	PASS
CCV0	CCV	1	Na	10.22	0.58	15	PASS
CCB0	CCB	1	Na	-0.0047	110.46	15	<PQL
ICSA0	ICSA	1	Na	-0.015	45.69	15	<PQL
ICSAB0	ICSAB	1	Na	9.11	0.32	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170810C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/10/2017	06:48:16 PM
2	Standard1	ICAL	1	08/10/2017	06:52:34 PM
3	Standard2	ICAL	1	08/10/2017	06:57:22 PM
11	Standard3	ICAL	1	08/10/2017	07:02:10 PM
12	Standard4	ICAL	1	08/10/2017	07:07:01 PM
6	Standard5	ICAL	1	08/10/2017	07:12:53 PM
7	Standard6	ICAL	1	08/10/2017	07:18:43 PM
8	Standard7	ICAL	1	08/10/2017	07:24:32 PM
9	ICV	ICV	1	08/10/2017	07:29:55 PM
1	ICB	ICB	1	08/10/2017	07:35:46 PM
2	LLICV1	CCV1	1	08/10/2017	07:43:18 PM
4	ICSA1	ICSA	1	08/10/2017	07:48:06 PM
5	ICSAB1	ICSAB	1	08/10/2017	07:54:03 PM
38	MB-63260	MBLK	1	08/10/2017	08:00:01 PM
39	LCS1-63260	LCS	1	08/10/2017	08:04:20 PM
40	N025284-002E	SAMP	1	08/10/2017	08:10:10 PM
41	N025284-002E	SAMP	5	08/10/2017	08:14:30 PM
42	N025284-002E-PS	PS	1	08/10/2017	08:19:19 PM
43	N025284-002E-MS1	MS	1	08/10/2017	08:24:39 PM
44	N025284-002E-MSD1	MSD	1	08/10/2017	08:30:01 PM
45	N025313-001B	SAMP	1	08/10/2017	08:35:21 PM
46	N025313-002B	SAMP	1	08/10/2017	08:40:42 PM
47	MB-63261	MBLK	1	08/10/2017	08:46:04 PM
7	CCV1	CCV	1	08/10/2017	08:50:24 PM
1	CCB1	CCB	1	08/10/2017	08:56:14 PM
48	LCS-63261	LCS	1	08/10/2017	09:00:32 PM
49	N025354-001B	SAMP	1	08/10/2017	09:06:23 PM
50	N025354-001B	SAMP	5	08/10/2017	09:11:44 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
51	N025354-001B-PS	PS	1	08/10/2017	09:16:33 PM
52	N025354-001B-MS	MS	1	08/10/2017	09:21:55 PM
53	N025354-001B-MSD	MSD	1	08/10/2017	09:27:15 PM
54	N025354-002B	SAMP	1	08/10/2017	09:32:37 PM
55	N025354-003B	SAMP	1	08/10/2017	09:37:57 PM
56	N025354-004B	SAMP	1	08/10/2017	09:43:19 PM
57	N025354-005B	SAMP	1	08/10/2017	09:48:08 PM
7	CCV2	CCV	1	08/10/2017	09:52:28 PM
1	CCB2	CCB	1	08/10/2017	09:58:18 PM
58	N025354-006B	SAMP	1	08/10/2017	10:02:36 PM
59	N025354-007B	SAMP	1	08/10/2017	10:07:26 PM
60	N025354-008B	SAMP	1	08/10/2017	10:12:47 PM
61	N025354-009B	SAMP	1	08/10/2017	10:18:09 PM
62	N025354-010B	SAMP	1	08/10/2017	10:23:31 PM
63	N025354-012B	SAMP	1	08/10/2017	10:28:53 PM
64	N025354-013B	SAMP	1	08/10/2017	10:33:43 PM
65	N025355-001B	SAMP	1	08/10/2017	10:39:33 PM
66	N025355-002B	SAMP	1	08/10/2017	10:45:26 PM
67	MB-63262	MBLK	1	08/10/2017	10:50:17 PM
7	CCV3	CCV	1	08/10/2017	10:54:37 PM
1	CCB3	CCB	1	08/10/2017	11:00:27 PM
2	LLCCV1	CCV2	1	08/10/2017	11:04:45 PM
4	ICSA2	ICSA	1	08/10/2017	11:09:33 PM
5	ICSAB2	ICSAB	1	08/10/2017	11:15:30 PM
4	ICSA2	ICSA	1	08/10/2017	11:55:37 PM
5	ICSAB2	ICSAB	1	08/11/2017	12:01:34 AM
68	LCS-63262	LCS	1	08/11/2017	12:07:31 AM
69	N025378-001B	SAMP	1	08/11/2017	12:13:23 AM
70	N025378-001B	SAMP	5	08/11/2017	12:18:14 AM
71	N025378-001B-PS	PS	1	08/11/2017	12:23:05 AM
72	N025378-001B-MS	MS	1	08/11/2017	12:28:27 AM
73	N025378-001B-MSD	MSD	1	08/11/2017	12:33:49 AM
74	N025378-002B	SAMP	1	08/11/2017	12:39:41 AM
75	N025378-003B	SAMP	1	08/11/2017	12:45:33 AM
76	N025378-004B	SAMP	1	08/11/2017	12:50:54 AM
77	N025378-008B	SAMP	1	08/11/2017	12:55:45 AM
7	CCV4	CCV	1	08/11/2017	01:00:35 AM
1	CCB4	CCB	1	08/11/2017	01:06:25 AM
78	N025378-009B	SAMP	1	08/11/2017	01:10:51 AM
79	N025378-010B	SAMP	1	08/11/2017	01:15:41 AM
80	N025378-011B	SAMP	1	08/11/2017	01:20:31 AM
81	N025378-012B	SAMP	1	08/11/2017	01:24:52 AM
82	N025378-013B	SAMP	1	08/11/2017	01:29:42 AM
83	N025378-014B	SAMP	1	08/11/2017	01:34:02 AM
84	N025378-015B	SAMP	1	08/11/2017	01:38:52 AM
85	N025379-001B	SAMP	1	08/11/2017	01:43:43 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
86	N025379-002B	SAMP	1	08/11/2017	01:48:34 AM
87	N025379-003B	SAMP	1	08/11/2017	01:53:25 AM
7	CCV5	CCV	1	08/11/2017	01:58:16 AM
1	CCB5	CCB	1	08/11/2017	02:04:07 AM
88	N025379-004B	SAMP	1	08/11/2017	02:08:25 AM
89	N025379-005B	SAMP	1	08/11/2017	02:13:16 AM
90	N025379-006B	SAMP	1	08/11/2017	02:18:06 AM
91	N025379-007B	SAMP	1	08/11/2017	02:22:57 AM
92	N025379-011B	SAMP	1	08/11/2017	02:27:56 AM
7	CCV6	CCV	1	08/11/2017	02:32:47 AM
1	CCB6	CCB	1	08/11/2017	02:38:37 AM
2	LLCCV2	CCV2	1	08/11/2017	02:43:22 AM
4	ICSA3	ICSA	1	08/11/2017	02:48:11 AM
5	ICSAB3	ICSAB	1	08/11/2017	02:54:07 AM

INJECTION LOG: 170811B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170601A,0.025<50mL
Standard2	MWST-170601A,0.25<50mL
Standard3	MWST-170601A,1.25<50mL
Standard4	MWST-170601A,2.5<50mL
Standard5	MWST-170601A,5<50mL
Standard6	MWST-170601A,10<50mL
ICV	MWST-170228B
CCV	MWST-170601A,2.5<50mL
ICSA/ICSAB	MWST-170601L/MWST-170601B
Int. Std. (Sc):	MSST-170404Q
PS Spike	MSST-130329D/E

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/11/2017	07:11:23 AM
26	Standard1	ICAL	1	08/11/2017	07:14:41 AM
27	Standard2	ICAL	1	08/11/2017	07:18:00 AM
28	Standard3	ICAL	1	08/11/2017	07:21:47 AM
29	Standard4	ICAL	1	08/11/2017	07:25:35 AM
30	Standard5	ICAL	1	08/11/2017	07:29:24 AM
31	Standard6	ICAL	1	08/11/2017	07:33:13 AM
32	ICV	ICV	1	08/11/2017	07:37:05 AM
1	ICB	ICB	1	08/11/2017	07:40:56 AM
33	ICSA1	ICSA	1	08/11/2017	07:44:13 AM
34	ICSAB1	ICSAB	1	08/11/2017	07:47:32 AM
38	MB-63260	MBLK	1	08/11/2017	07:51:22 AM
39	LCS2-63260	LCS	1	08/11/2017	07:54:41 AM
45	N025313-001B	SAMP	1	08/11/2017	07:58:31 AM
46	N025313-002B	SAMP	1	08/11/2017	08:03:22 AM
110	N025313-001B	SAMP	25	08/11/2017	08:08:16 AM
111	N025313-002B	SAMP	50	08/11/2017	08:11:37 AM
112	N025313-002B	SAMP	250	08/11/2017	08:14:57 AM
113	N025313-002B-PS	PS	50	08/11/2017	08:18:17 AM
114	N025313-002B-MS	MS	50	08/11/2017	08:21:39 AM
115	N025313-002B-MSD	MSD	50	08/11/2017	08:25:00 AM
29	CCV1	CCV	1	08/11/2017	08:28:19 AM
1	CCB1	CCB	1	08/11/2017	08:32:08 AM
33	ICSA2	ICSA	1	08/11/2017	08:35:24 AM
34	ICSAB2	ICSAB	1	08/11/2017	08:38:47 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/10/2017 8:00:00**
Prep End Date: **8/10/2017 11:00:00**
Prep Batch **63260** Prep Code: **200.7_PR**

Reviewed/ Date: 8/17/2017
Initials/ Date: CEI 8/17/2017
Technician **Mark Gesmundo**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**95**	**DB-2-12**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-63260	Aqueous		25	☐	0	0	25	1.000		
LCS2-63260	Aqueous		25	☐	0	0	25	1.000		
MB-63260	Aqueous		25	☐	0	0	25	1.000		
N025284-002E	Water	<2	25	☐	0	0	25	1.000		
N025284-002E-MS	Water	<2	25	☐	0	0	25	1.000		
N025284-002E-MS	Water	<2	25	☐	0	0	25	1.000		
N025313-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025313-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025313-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025313-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-130329D	Sodium	LCS,MS,MSD	0.05
MSST-130329E	Potassium	LCS,MS,MSD	0.05
MSST-170116A	Strontium	LCS,MS,MSD	0.125
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170810C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	08/10/2017	06:48:16 PM	Mg	279.079	-39	0.00	mg/L	
Standard1	08/10/2017	06:52:34 PM	Mg	279.079	1031	0.1000	mg/L	
Standard2	08/10/2017	06:57:22 PM	Mg	279.079	8147	1.000	mg/L	
Standard3	08/10/2017	07:02:10 PM	Mg	279.079	16545	2.000	mg/L	
Standard4	08/10/2017	07:07:01 PM	Mg	279.079	42498	5.000	mg/L	
Standard5	08/10/2017	07:12:53 PM	Mg	279.079	62605	7.500	mg/L	
Standard6	08/10/2017	07:18:43 PM	Mg	279.079	82755	10.000	mg/L	
Standard7	08/10/2017	07:24:32 PM	Mg	279.079	156652	20.000	mg/L	0.9996
Calcium								
CalBlk	08/10/2017	06:48:16 PM	Ca	227.546	-38	0.00	mg/L	
Standard1	08/10/2017	06:52:34 PM	Ca	227.546	25	0.2000	mg/L	
Standard2	08/10/2017	06:57:22 PM	Ca	227.546	139	1.000	mg/L	
Standard3	08/10/2017	07:02:10 PM	Ca	227.546	289	2.000	mg/L	
Standard4	08/10/2017	07:07:01 PM	Ca	227.546	755	5.000	mg/L	
Standard5	08/10/2017	07:12:53 PM	Ca	227.546	1097	7.500	mg/L	
Standard6	08/10/2017	07:18:43 PM	Ca	227.546	1451	10.000	mg/L	
Standard7	08/10/2017	07:24:32 PM	Ca	227.546	2854	20.000	mg/L	0.9999
Iron								
CalBlk	08/10/2017	06:48:16 PM	Fe	273.953	119	0.00	mg/L	
Standard1	08/10/2017	06:52:34 PM	Fe	273.953	314	0.0200	mg/L	
Standard2	08/10/2017	06:57:22 PM	Fe	273.953	1179	0.050	mg/L	
Standard3	08/10/2017	07:02:10 PM	Fe	273.953	29827	2.000	mg/L	
Standard4	08/10/2017	07:07:01 PM	Fe	273.953	76690	5.000	mg/L	
Standard5	08/10/2017	07:12:53 PM	Fe	273.953	113208	7.500	mg/L	
Standard6	08/10/2017	07:18:43 PM	Fe	273.953	143660	10.000	mg/L	
Standard7	08/10/2017	07:24:32 PM	Fe	273.953	282263	20.000	mg/L	0.9997

INITIAL CALIBRATION SUMMARY: 170811B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	08/11/2017	07:11:23 AM	Na	589.594	115	0.00	mg/L	
Standard1	08/11/2017	07:14:41 AM	Na	589.594	221	0.1000	mg/L	
Standard2	08/11/2017	07:18:00 AM	Na	589.594	1956	1.000	mg/L	
Standard3	08/11/2017	07:21:47 AM	Na	589.594	9908	5.000	mg/L	
Standard4	08/11/2017	07:25:35 AM	Na	589.594	19577	10.000	mg/L	
Standard5	08/11/2017	07:29:24 AM	Na	589.594	38755	20.000	mg/L	
Standard6	08/11/2017	07:33:13 AM	Na	589.594	77951	40.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117022**
Client ID: **ICV** Batch ID: **R117022** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10152.339	500	10000	0	102	90	110				
Iron	10031.393	20	10000	0	100	90	110				
Magnesium	10369.693	100	10000	0	104	90	110				

Sample ID **LLICV1** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117022**
Client ID: **ZZZZZZ** Batch ID: **R117022** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730359**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	193.131	500	200.0	0	96.6	80	120				
Iron	20.608	20	20.00	0	103	80	120				
Magnesium	112.627	100	100.0	0	113	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117022**
Client ID: **CCV** Batch ID: **R117022** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10090.926	500	10000	0	101	90	110				
Iron	10023.553	20	10000	0	100	90	110				
Magnesium	10346.235	100	10000	0	103	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117022**
Client ID: **CCV** Batch ID: **R117022** TestNo: **EPA 200.7** Analysis Date: **8/10/2017** SeqNo: **2730384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10054.705	500	10000	0	101	90	110				
Iron	9980.916	20	10000	0	99.8	90	110				
Magnesium	10272.590	100	10000	0	103	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **CCV**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9980.514	500	10000	0	99.8	90	110				
Iron	10065.910	20	10000	0	101	90	110				
Magnesium	10461.696	100	10000	0	105	90	110				

Sample ID **LLCCV**	SampType: **CCV2**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ZZZZZZ**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	184.311	500	200.0	0	92.2	70	130				
Iron	17.784	20	20.00	0	88.9	70	130				
Magnesium	115.229	100	100.0	0	115	70	130				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ICV**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10272.534	500	10000	0	103	90	110				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **CCV**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10224.012	500	10000	0	102	90	110				

Qualifiers:

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

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ICB**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-31.314206	500									
Iron	3.273	20									
Magnesium	0.295	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **CCB**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-52.356685	500									
Iron	-2.014561	20									
Magnesium	0.466	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **CCB**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-49.207963	500									
Iron	-3.536419	20									
Magnesium	0.692	100									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **CCB**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-60.541919	500									
Iron	-2.881875	20									
Magnesium	0.865	100									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ICB**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-37.27315	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **CCB**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-4.669696	500									

Qualifiers:

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ICSA**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	474623.723	50	500000	0	94.9	80	120				
Calcium	480936.703	500	500000	0	96.2	80	120				
Iron	170411.045	20	200000	0	85.2	80	120				
Magnesium	466388.395	100	500000	0	93.3	80	120				

Sample ID: **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ICSAB**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	527203.327	50	500000	0	105	80	120				
Calcium	537735.062	500	500000	0	108	80	120				
Iron	184091.929	20	200000	0	92.0	80	120				
Magnesium	515001.213	100	500000	0	103	80	120				

Sample ID: **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ICSA**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	473878.579	50	500000	0	94.8	80	120				
Calcium	479901.772	500	500000	0	96.0	80	120				
Iron	170561.168	20	200000	0	85.3	80	120				
Magnesium	468136.668	100	500000	0	93.6	80	120				

Sample ID: **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ICSAB**	Batch ID: **R117022**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	527164.054	50	500000	0	105	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117022**
Client ID: **ICSAB** Batch ID: **R117022** TestNo: **EPA 200.7** Analysis Date: **8/11/2017** SeqNo: **2730402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	533774.399	500	500000	0	107	80	120				
Iron	184455.891	20	200000	0	92.2	80	120				
Magnesium	518796.017	100	500000	0	104	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ICSA**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-34.718965	500									

Sample ID: **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ICSAB**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9169.650	500	10000	0	91.7	80	120				

Sample ID: **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ICSA**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-14.761668	500									

Sample ID: **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ICSAB**	Batch ID: **R117052**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9110.596	500	10000	0	91.1	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170810C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.02	102.01	65-125	PASS
Standard2	ICAL	1	1.076	107.57	65-125	PASS
Standard3	ICAL	1	1.024	102.43	65-125	PASS
Standard4	ICAL	1	1.012	101.17	65-125	PASS
Standard5	ICAL	1	1.059	105.89	65-125	PASS
Standard6	ICAL	1	1.0042	100.42	65-125	PASS
Standard7	ICAL	1	0.99	99.021	65-125	PASS
ICV	ICV	1	1.0012	100.12	65-125	PASS
ICB	ICB	1	1.0091	100.91	65-125	PASS
LLICV1	CCV1	1	1.015	101.53	65-125	PASS
ICSA1	ICSA	1	0.93	92.92	65-125	PASS
ICSAB1	ICSAB	1	0.84	84.26	65-125	PASS
MB-63260	MBLK	1	1.0075	100.75	65-125	PASS
LCS1-63260	LCS	1	0.93	92.7	65-125	PASS
N025284-002E	SAMP	1	0.92	91.64	65-125	PASS
N025284-002E	SAMP	5	0.94	94.46	65-125	PASS
N025284-002E-PS	PS	1	0.91	90.93	65-125	PASS
N025284-002E-MS1	MS	1	0.91	91.42	65-125	PASS
N025284-002E-MSD1	MSD	1	0.91	91.42	65-125	PASS
N025313-001B	SAMP	1	0.93	93.45	65-125	PASS
N025313-002B	SAMP	1	0.9	90.022	65-125	PASS
CCV1	CCV	1	1.0004	100.04	65-125	PASS
CCB1	CCB	1	1.0099	100.99	65-125	PASS
CCV2	CCV	1	1.0042	100.42	65-125	PASS
CCB2	CCB	1	1.016	101.56	65-125	PASS
CCV3	CCV	1	1.014	101.41	65-125	PASS
CCB3	CCB	1	1.019	101.91	65-125	PASS
LLCCV1	CCV2	1	1.019	101.87	65-125	PASS
ICSA2	ICSA	1	0.94	93.73	65-125	PASS
ICSAB2	ICSAB	1	0.85	84.97	65-125	PASS
ICSA2	ICSA	1	0.93	93.45	65-125	PASS
ICSAB2	ICSAB	1	0.84	84.47	65-125	PASS

INTERNAL STANDARD: 170811B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.021	102.13	65-125	PASS
Standard2	ICAL	1	1.038	103.85	65-125	PASS
Standard3	ICAL	1	1.033	103.28	65-125	PASS
Standard4	ICAL	1	1.018	101.85	65-125	PASS
Standard5	ICAL	1	1.026	102.6	65-125	PASS
Standard6	ICAL	1	1.017	101.72	65-125	PASS
ICV	ICV	1	0.99	98.64	65-125	PASS
ICB	ICB	1	1.0023	100.23	65-125	PASS
ICSA1	ICSA	1	1.036	103.55	65-125	PASS
ICSAB1	ICSAB	1	1.0098	100.98	65-125	PASS
MB-63260	MBLK	1	1.0023	100.23	65-125	PASS
LCS2-63260	LCS	1	1.034	103.37	65-125	PASS
N025313-001B	SAMP	1	0.99	98.9	65-125	PASS
N025313-002B	SAMP	1	0.96	96.43	65-125	PASS
N025313-001B	SAMP	25	0.99	99.29	65-125	PASS
N025313-002B	SAMP	50	0.99	98.8	65-125	PASS
N025313-002B	SAMP	250	1	99.68	65-125	PASS
N025313-002B-PS	PS	50	0.99	98.81	65-125	PASS
N025313-002B-MS	MS	50	0.99	99.33	65-125	PASS
N025313-002B-MSD	MSD	50	0.99	99.32	65-125	PASS
CCV1	CCV	1	1.019	101.87	65-125	PASS
CCB1	CCB	1	1.016	101.64	65-125	PASS
ICSA2	ICSA	1	1.039	103.93	65-125	PASS
ICSAB2	ICSAB	1	1.026	102.58	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025284
Test Method: EPA 200.7
Analysis Date: 8/10/2017

Matrix: Water
Batch No.: 63260

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025284-002E DT 5X	Calcium	ug/L	95875.65	PASS	94885.87	1.04%	10
N025284-002E DT 5X	Iron	ug/L	0	NA	14.49365	100.00%	10
N025284-002E DT 5X	Magnesium	ug/L	29022.82	FAIL	25935.02	11.91%	10

Note: NA - Not applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025284
Test Method: EPA 200.7
Analysis Date: 8/11/2017

Matrix: Water
Batch No.: 63260

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025313-002E DT 250X	Sodium	ug/L	1459212	PASS	1449029	0.70%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N025284-002E-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117022**
Client ID: **ZZZZZZ**	Batch ID: **63260**	TestNo: **EPA 200.7**		Analysis Date: **8/10/2017**	SeqNo: **2730366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	106120.644	500	10000	94890	112	80	120				
Iron	107.972	20	100.0	14.49	93.5	80	120				
Magnesium	35294.949	100	10000	25940	93.6	80	120				

Sample ID **N025313-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117052**
Client ID: **ZZZZZZ**	Batch ID: **63260**	TestNo: **EPA 200.7**		Analysis Date: **8/11/2017**	SeqNo: **2730643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1481501.141	25000	20000	1449000	162	80	120				S

Qualifiers:

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

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

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

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

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

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63208
ASSET #: N025313

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 8/9/2017

Method:

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

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

Comments:

%Rec of Cr in N025284-001C PS/MS/MSD failed. However, LCS passed criteria.

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

1st Level Reviewer CEI 8/17/2017 Date: _____

2nd Level Reviewer [illegible] 8/17/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 200.8
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

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

Chromium , ug/L = A * DF * PF

where:

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

For Sample **N025313-002B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 103.378 * 5 * (25/25)

Chromium , ug/L = 516.89

Reporting results in two significant figures,

Chromium , ug/L = 520

% RSD SUMMARY

PERCENT RSD SUMMARY: 170809A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.088	3.6	15	PASS	0.092	3.094	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	2.91	15	PASS	0.5	3.4	15	PASS
Std3-5/50 ppb	ICAL	1	4.98	1.35	15	PASS	5	2.26	15	PASS
Std4-10/100 ppb	ICAL	1	9.93	1.67	15	PASS	10.026	1.37	15	PASS
Std5-20/200 ppb	ICAL	1	19.74	1.048	15	PASS	19.97	1.31	15	PASS
Std6-40/400 ppb	ICAL	1	39.35	1.13	15	PASS	40.014	0.88	15	PASS
Std7-100/1000 ppb	ICAL	1	98.33	1.62	15	PASS	100.18	1.43	15	PASS
Std8-200/2000 ppb	ICAL	1	201	0.24	15	PASS	199.91	0.44	15	PASS
ICV	ICV	1	10.16	0.94	15	PASS	103.25	0.86	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.0098	41.99	15	<PQL
LLICV	CCV1	1	1.15	2.39	20	PASS	0.59	2.5	20	PASS
ICSA1	ICSA	1	0.15	2.29	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.011	2.026	15	PASS	20.024	1.93	15	PASS
LLICV	CCV1	1	1.2	0.2	20	PASS	0.56	5.22	20	PASS
MB-63208	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-63208	LCS	1	9.98	1.69	15	PASS	101.67	1.36	15	PASS
N025284-001C	SAMP	1	405.96	0.59	15	PASS	20.62	0.83	15	PASS
N025284-001C	SAMP	5	87.67	1.28	15	PASS	4.52	0.63	15	PASS
N025284-001C	SAMP	25	17.98	0.82	15	PASS	0.98	0.8	15	PASS
N025284-001C-PS	PS	1	389.7	0.48	15	PASS	104.18	0.74	15	PASS
N025284-001C-PS	PS	5	85.21	0.69	15	PASS	23.041	0.55	15	PASS
N025284-001C-MS	MS	1	384.65	1.88	15	PASS	110.73	1.18	15	PASS
N025284-001C-MS	MS	5	86.84	1.36	15	PASS	25.032	1.43	15	PASS
N025284-001C-MSD	MSD	1	389.032	1.0058	15	PASS	111.15	0.77	15	PASS
CCV1	CCV	1	20.75	1.13	15	PASS	19.72	0.63	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025284-001C-MSD	MSD	5	87.32	1.79	15	PASS	25.067	2.62	15	PASS
N025284-002E	SAMP	1	0.5	3.47	15	PASS	1.17	4.99	15	PASS
N025284-002E	SAMP	5	0.089	4.28	15	PASS	0.29	3.98	15	PASS
N025313-001B	SAMP	1	0.56	2.056	15	PASS	146.17	0.72	15	PASS
N025313-001B	SAMP	5	0.13	6.22	15	PASS	32.73	1.73	15	PASS
N025313-002B	SAMP	1	462.0091	1.56	15	PASS	8.65	1.11	15	PASS
N025313-002B	SAMP	5	103.38	0.54	15	PASS	2.024	1.37	15	PASS
CCV2	CCV	1	19.93	1.83	15	PASS	19.62	1.44	15	PASS
CCB2	CCB	1	0.0033	274.037	15	<PQL	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.1	3.29	15	PASS	19.85	2.92	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025313-001B	SAMP	1	0.61	1.15	15	PASS	147.19	1.16	15	PASS
CCV4	CCV	1	20.42	0.87	15	PASS	19.91	1.12	15	PASS
CCB4	CCB	1	0.0095	216.43	15	<PQL	0.055	103.26	15	<PQL

PERCENT RSD SUMMARY: 170809A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
LLCCV1	CCV2	1	1.15	2.39	20	PASS	0.54	1.058	20	PASS
ICSA2	ICSA	1	0.15	11.5	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	21.81	3.36	15	PASS	21.76	5.65	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170809A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0809001.D	RINSE	RINSE	1	08/09/17 9:39 AM
A0809002.D	Cal Blank	IBLK	1	08/09/17 9:45 AM
A0809003.D	Std1-0.1/1 ppb	ICAL	1	08/09/17 9:50 AM
A0809004.D	Std2-0.5/5 ppb	ICAL	1	08/09/17 9:56 AM
A0809005.D	Std3-5/50 ppb	ICAL	1	08/09/17 10:01 AM
A0809006.D	Std4-10/100 ppb	ICAL	1	08/09/17 10:07 AM
A0809007.D	Std5-20/200 ppb	ICAL	1	08/09/17 10:12 AM
A0809008.D	Std6-40/400 ppb	ICAL	1	08/09/17 10:18 AM
A0809009.D	Std7-100/1000 ppb	ICAL	1	08/09/17 10:24 AM
A0809010.D	Std8-200/2000 ppb	ICAL	1	08/09/17 10:29 AM
A0809011.D	ICV	ICV	1	08/09/17 10:35 AM
A0809012.D	ICB	ICB	1	08/09/17 10:40 AM
A0809013.D	LLICV	CCV1	1	08/09/17 10:46 AM
A0809014.D	ICSA1	ICSA	1	08/09/17 10:51 AM
A0809015.D	ICSAB1	ICSAB	1	08/09/17 10:57 AM
A0809016.D	LLICV	CCV1	1	08/09/17 11:02 AM
A0809017.D	MB-63208	MBLK	1	08/09/17 11:08 AM
A0809018.D	LCS-63208	LCS	1	08/09/17 11:13 AM
A0809019.D	N025284-001C	SAMP	1	08/09/17 11:19 AM
A0809020.D	N025284-001C	SAMP	5	08/09/17 11:24 AM
A0809021.D	N025284-001C	SAMP	25	08/09/17 11:30 AM
A0809022.D	N025284-001C-PS	PS	1	08/09/17 11:35 AM
A0809023.D	N025284-001C-PS	PS	5	08/09/17 11:41 AM
A0809024.D	N025284-001C-MS	MS	1	08/09/17 11:46 AM
A0809025.D	N025284-001C-MS	MS	5	08/09/17 11:52 AM
A0809026.D	N025284-001C-MSD	MSD	1	08/09/17 11:57 AM
A0809027.D	CCV1	CCV	1	08/09/17 12:03 PM
A0809028.D	CCB1	CCB	1	08/09/17 12:08 PM
A0809029.D	N025284-001C-MSD	MSD	5	08/09/17 12:14 PM
A0809030.D	N025284-002E	SAMP	1	08/09/17 12:20 PM
A0809031.D	N025284-002E	SAMP	5	08/09/17 12:25 PM
A0809032.D	N025313-001B	SAMP	1	08/09/17 12:31 PM
A0809033.D	N025313-001B	SAMP	5	08/09/17 12:36 PM
A0809034.D	N025313-002B	SAMP	1	08/09/17 12:42 PM
A0809035.D	N025313-002B	SAMP	5	08/09/17 12:47 PM
A0809036.D	N025299-001H	SAMP	1	08/09/17 12:53 PM
A0809037.D	N025299-001H	SAMP	5	08/09/17 12:58 PM
A0809038.D	N025299-001I	SAMP	1	08/09/17 1:04 PM
A0809039.D	CCV2	CCV	1	08/09/17 1:09 PM
A0809040.D	CCB2	CCB	1	08/09/17 1:15 PM
A0809041.D	N025299-001I	SAMP	5	08/09/17 1:20 PM
A0809042.D	N025318-001H	SAMP	1	08/09/17 1:26 PM

INJECTION LOG: 170809A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0809043.D	N025318-001H	SAMP	5	08/09/17 1:31 PM
A0809044.D	N025318-001I	SAMP	1	08/09/17 1:37 PM
A0809045.D	N025318-001I	SAMP	5	08/09/17 1:42 PM
A0809046.D	N025342-001C	SAMP	1	08/09/17 1:48 PM
A0809047.D	N025342-001C	SAMP	5	08/09/17 1:54 PM
A0809048.D	N025352-001H	SAMP	1	08/09/17 1:59 PM
A0809049.D	N025352-001H	SAMP	5	08/09/17 2:05 PM
A0809050.D	N025352-001I	SAMP	1	08/09/17 2:10 PM
A0809051.D	CCV3	CCV	1	08/09/17 2:16 PM
A0809052.D	CCB3	CCB	1	08/09/17 2:21 PM
A0809053.D	N025352-001I	SAMP	5	08/09/17 2:27 PM
A0809054.D	N025352-002H	SAMP	1	08/09/17 2:32 PM
A0809055.D	N025352-002H	SAMP	5	08/09/17 2:38 PM
A0809056.D	N025352-002H-MS	MS	1	08/09/17 2:44 PM
A0809057.D	N025352-002H-MS	MS	5	08/09/17 2:49 PM
A0809058.D	N025352-002I	SAMP	1	08/09/17 2:55 PM
A0809059.D	N025352-002I	SAMP	5	08/09/17 3:00 PM
A0809060.D	N025313-001B	SAMP	1	08/09/17 3:06 PM
A0809061.D	CCV4	CCV	1	08/09/17 3:11 PM
A0809062.D	CCB4	CCB	1	08/09/17 3:17 PM
A0809063.D	LLCCV1	CCV2	1	08/09/17 3:22 PM
A0809064.D	ICSA2	ICSA	1	08/09/17 3:28 PM
A0809065.D	ICSAB2	ICSAB	1	08/09/17 3:33 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/8/2017 8:44:40 A**
Prep End Date: **8/8/2017 1:00:00 P**
Reviewed/ Date: 8/17/2017
Initials/ Date: CEI 8/17/2017
Prep Batch **63208** Prep Code: **200.8_PR** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.9**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63208	Aqueous		25	☐	0	0	25	1.000		
MB-63208	Aqueous		25	☐	0	0	25	1.000		
N025284-001C	Water	<2	25	☐	0	0	25	1.000		
N025284-001C-MS	Water	<2	25	☐	0	0	25	1.000		
N025284-001C-MS	Water	<2	25	☐	0	0	25	1.000		
N025284-002E	Water	<2	25	☐	0	0	25	1.000		
N025299-001H dissolved	Groundwater	<2	25	☐	0	0	25	1.000		
N025299-001I total	Groundwater	<2	25	☐	0	0	25	1.000		
N025313-001B dissolved	Groundwater	<2	25	☐	0	0	25	1.000		
N025313-002B dissolved	Groundwater	<2	25	☐	0	0	25	1.000		
N025318-001H dissolved	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/8/2017 8:44:40 A**
Prep End Date: **8/8/2017 1:00:00 P**
Reviewed/ Date: _____
Initials/ Date: _____
Prep Batch **63208** Prep Code: **200.8_PR** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.9**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025318-001I total	Groundwater	<2	25	☐	0	0	25	1.000		
N025342-001C	Wastewater	<2	25	☐	0	0	25	1.000		
N025352-001H dissolved	Groundwater	<2	25	☐	0	0	25	1.000		
N025352-001I total	Groundwater	<2	25	☐	0	0	25	1.000		
N025352-002H dissolved	Groundwater	<2	25	☐	0	0	25	1.000		
N025352-002H-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025352-002I total	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 Aug 2017 07:34:40 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	101241.00	0.00	
24 Mg	434167.00	0.00	
25 Mg	57836.20	0.00	
26 Mg	67691.30	0.00	
59 Co	722939.00	0.00	
115 In	1142860.00	0.00	
206 Pb	264372.00	0.00	
207 Pb	231927.00	0.00	
208 Pb	569317.00	0.00	

RSD (%)

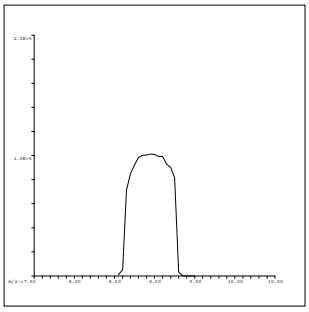
Element	Actual	Required	Flag
9 Be	0.47	5.00	
24 Mg	0.49	5.00	
25 Mg	0.91	5.00	
26 Mg	0.55	5.00	
59 Co	0.56	5.00	
115 In	0.25	5.00	
206 Pb	0.43	5.00	
207 Pb	0.64	5.00	
208 Pb	0.47	5.00	

Ion Ratio

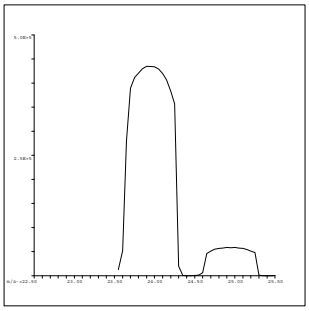
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

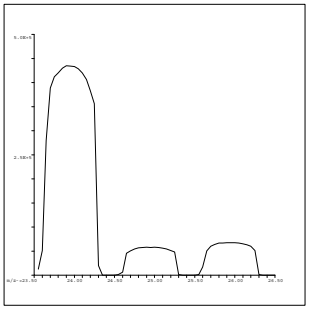
Element	Actual	Required	Flag



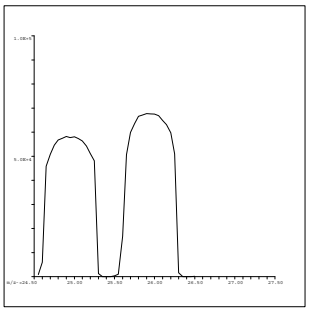
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



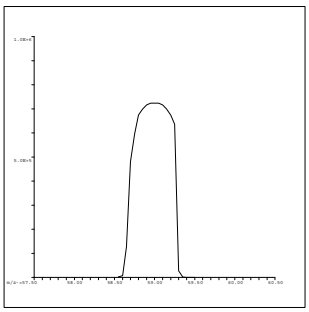
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



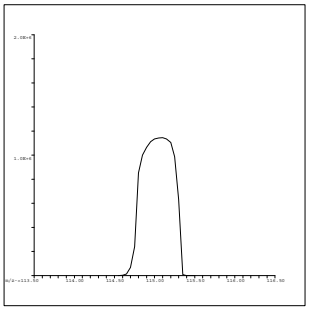
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



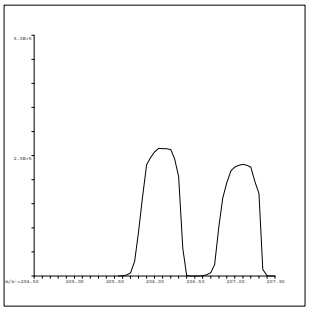
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



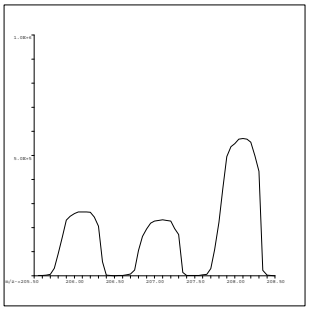
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



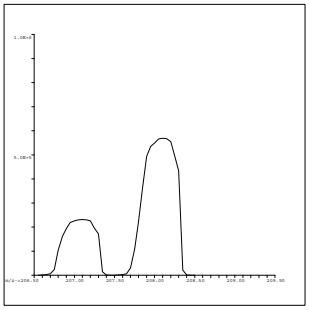
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.10
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.10
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.10
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170809A

Instrument ID: ICPMS-02

Analyte	Data File	A0809002.D	A0809004.D	A0809005.D	A0809006.D	A0809007.D	A0809008.D	A0809009.D	A0809010.D	
	Acq. Date-Time	08/09/2017 09:45 AM	08/09/2017 09:56 AM	08/09/2017 10:01 AM	08/09/2017 10:07 AM	08/09/2017 10:12 AM	08/09/2017 10:18 AM	08/09/2017 10:24 AM	08/09/2017 10:29 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	126410.5	126174.3	124757.5	125154.3	125304	124894.2	123794.7	124656.3	
55 Mn [2]	CPS	125.1	2732.8	25937.6	52057.4	103685.7	206990.2	513399.9	1031721	1.0000
52 Cr [2]	CPS	587.8	5199.8	47656.4	94693.7	187925.3	372932.5	922635.3	1899085.2	0.9999

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV** SampType: **ICV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **ICV** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.158	1.0	10.00	0	102	90	110				
Manganese	103.255	0.50	100.0	0	103	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **ZZZZZZ** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.152	1.0	1.000	0	115	80	120				
Manganese	0.593	0.50	0.5000	0	119	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **CCV** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726108**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.752	1.0	20.00	0	104	90	110				
Manganese	19.720	0.50	20.00	0	98.6	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **CCV** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726120**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.928	1.0	20.00	0	99.6	90	110				
Manganese	19.621	0.50	20.00	0	98.1	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **CCV** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726132**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCV**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.103	1.0	20.00	0	101	90	110				
Manganese	19.853	0.50	20.00	0	99.3	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCV**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.422	1.0	20.00	0	102	90	110				
Manganese	19.907	0.50	20.00	0	99.5	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.151	1.0	1.000	0	115	70	130				
Manganese	0.542	0.50	0.5000	0	108	70	130				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICV**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.158	1.0	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ZZZZZZ**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.152	1.0	1.000	0	115	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCV**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.752	1.0	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCV**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.928	1.0	20.00	0	99.6	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCV**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.103	1.0	20.00	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	CCV4	SampType:	CCV	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	116975
Client ID:	CCV	Batch ID:	R116975	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727076

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.422	1.0	20.00	0	102	90	110				

Sample ID	LLCCV1	SampType:	CCV2	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	116975
Client ID:	ZZZZZZ	Batch ID:	R116975	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2727078

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.151	1.0	1.000	0	115	70	130				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726109**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726133**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726143**

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

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2726143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727027**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727043**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727055**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727067**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **CCB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727077**

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

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **ICSA** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.151	1.0									
Manganese	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **ICSAB** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.011	1.0	20.00	0	100	80	120				
Manganese	20.024	0.50	20.00	0	100	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **ICSA** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.152	1.0									
Manganese	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **116975**
Client ID: **ICSAB** Batch ID: **R116975** TestNo: **EPA 200.8** Analysis Date: **8/9/2017** SeqNo: **2726146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.812	1.0	20.00	0	109	80	120				
Manganese	21.756	0.50	20.00	0	109	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICSA**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.151	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICSAB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.011	1.0	20.00	0	100	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICSA**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.152	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID: **ICSAB**	Batch ID: **R116975**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.812	1.0	20.00	0	109	80	120				

Qualifiers:

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

Calculations are based on raw values

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170809A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	126410.5	126410.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	128461.9	126410.5	101.62	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	126174.3	126410.5	99.81	PASS	70-125
Std3-5/50 ppb	ICAL	1	124757.5	126410.5	98.69	PASS	70-125
Std4-10/100 ppb	ICAL	1	125154.3	126410.5	99.006	PASS	70-125
Std5-20/200 ppb	ICAL	1	125304	126410.5	99.12	PASS	70-125
Std6-40/400 ppb	ICAL	1	124894.2	126410.5	98.8	PASS	70-125
Std7-100/1000 ppb	ICAL	1	123794.7	126410.5	97.93	PASS	70-125
Std8-200/2000 ppb	ICAL	1	124656.3	126410.5	98.61	PASS	70-125
ICV	ICV	1	125400.2	126410.5	99.2	PASS	70-125
ICB	ICB	1	121902.6	126410.5	96.43	PASS	70-125
LLICV	CCV1	1	139996.4	126410.5	110.75	PASS	70-125
ICSA1	ICSA	1	142826.9	126410.5	112.99	PASS	70-125
ICSAB1	ICSAB	1	138871.4	126410.5	109.86	PASS	70-125
LLICV	CCV1	1	137273.1	126410.5	108.59	PASS	70-125
MB-63208	MBLK	1	139718.8	126410.5	110.53	PASS	70-125
LCS-63208	LCS	1	135849.3	126410.5	107.47	PASS	70-125
N025284-001C	SAMP	1	136064.4	126410.5	107.64	PASS	70-125
N025284-001C	SAMP	5	144703.7	126410.5	114.47	PASS	70-125
N025284-001C	SAMP	25	147685.6	126410.5	116.83	PASS	70-125
N025284-001C-PS	PS	1	147221.7	126410.5	116.46	PASS	70-125
N025284-001C-PS	PS	5	152054.3	126410.5	120.29	PASS	70-125
N025284-001C-MS	MS	1	156830.8	126410.5	124.07	PASS	70-125
N025284-001C-MS	MS	5	155516.9	126410.5	123.03	PASS	70-125
N025284-001C-MSD	MSD	1	157656.7	126410.5	124.72	PASS	70-125
CCV1	CCV	1	121356.8	126410.5	96.002	PASS	70-125
CCB1	CCB	1	127375.9	126410.5	100.76	PASS	70-125
N025284-001C-MSD	MSD	5	150163.5	126410.5	118.79	PASS	70-125
N025284-002E	SAMP	1	154360.5	126410.5	122.11	PASS	70-125
N025284-002E	SAMP	5	158329.6	126410.5	125.25	NR!	70-125
N025313-001B	SAMP	1	159579.2	126410.5	126.24	NR!	70-125
N025313-001B	SAMP	5	152087.2	126410.5	120.31	PASS	70-125
N025313-002B	SAMP	1	154156.9	126410.5	121.95	PASS	70-125
N025313-002B	SAMP	5	154224.2	126410.5	122	PASS	70-125
CCV2	CCV	1	139330.3	126410.5	110.22	PASS	70-125
CCB2	CCB	1	141435.9	126410.5	111.89	PASS	70-125
CCV3	CCV	1	121751.5	126410.5	96.31	PASS	70-125
CCB3	CCB	1	127630.3	126410.5	100.96	PASS	70-125
N025313-001B	SAMP	1	120524.9	126410.5	95.34	PASS	70-125
CCV4	CCV	1	128701.3	126410.5	101.81	PASS	70-125
CCB4	CCB	1	121532.8	126410.5	96.14	PASS	70-125

INTERNAL STANDARD: 170809A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
LLCCV1	CCV2	1	142150.8	126410.5	112.45	PASS	70-125
ICSA2	ICSA	1	139588.3	126410.5	110.42	PASS	70-125
ICSAB2	ICSAB	1	119305.8	126410.5	94.38	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N025313
Test Method: EPA 200.8
Analysis Date: 8/9/2017

Matrix: Groundwater
Batch No.: 63208

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

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025284-001C DT 25X	Chromium	ug/L	449.5962	PASS	438.362	2.56%	10
N025284-001C DT 5X	Manganese	ug/L	22.6203	PASS	20.62391	9.68%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	N025284-001C-PS	SampType:	PS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:		RunNo:	116975	
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726103	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	104.185	0.50	100.0	20.62	83.6	80	120				

Sample ID	N025284-001C-PS	SampType:	PS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:		RunNo:	116975	Not reported
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo:	EPA 200.8			Analysis Date:	8/9/2017	SeqNo:	2726104	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	426.059	5.0	10.00	438.4	-123	80	120				S

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	**N025284-001C-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **116975**
Client ID:	**ZZZZZZ**	Batch ID: **63208**	TestNo: **EPA 200.8**		Analysis Date: **8/9/2017**	SeqNo: **2727038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	426.059	5.0	10.00	438.4	-123	80	120				S

Qualifiers:

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

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

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

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R116845
ASSET #: N025313

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 8/3/2017

Method:

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer rba Date: 8/7/2017

2nd Level Reviewer _____ Date: 08/15/2017

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R116882
ASSET #: N025313

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 8/4/2017

Method:

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer rba Date: 8/7/2017

2nd Level Reviewer _____ Date: 08/15/2017

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N025313-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 5.3989 * 100$$

$$Cr^{+6}, \mu g/L = 539.89$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 540}$$

rba 8/7/2017

ANALYSIS RUN LOG

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	08/02/17 1:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/02/17 1:49 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	08/02/17 1:58 PM	Reported
13	MB-R116844	MBLK	1	Hexavalent Chromium	08/02/17 2:08 PM	Reported
14	LCS-R116844	LCS	1	Hexavalent Chromium	08/02/17 2:17 PM	Reported
15	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 2:28 PM	Reported
16	N025284-001BMS	MS	100	Hexavalent Chromium	08/02/17 2:39 PM	Reported
17	N025284-001BMSD	MSD	100	Hexavalent Chromium	08/02/17 2:48 PM	Reported
18	N025284-002C	SAMP	1	Hexavalent Chromium	08/02/17 2:57 PM	Reported
19	N025284-002CMS	MS	1	Hexavalent Chromium	08/02/17 3:07 PM	Reported
20	N025254-009A	SAMP	1	Hexavalent Chromium	08/02/17 3:16 PM	Not Reported
21	N025254-010A	SAMP	1	Hexavalent Chromium	08/02/17 3:26 PM	Reported
22	N025284-002C	SAMP	5	Hexavalent Chromium	08/02/17 3:35 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	08/02/17 3:45 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	08/02/17 3:54 PM	Reported
25	N025284-002CMS	MS	5	Hexavalent Chromium	08/02/17 4:04 PM	Reported
26	N025254-001A	SAMP	1	Hexavalent Chromium	08/02/17 4:13 PM	Reported
27	N025254-002A	SAMP	5	Hexavalent Chromium	08/02/17 4:23 PM	Not Reported
28	N025254-003A	SAMP	50	Hexavalent Chromium	08/02/17 4:32 PM	Reported
29	N025254-004A	SAMP	1	Hexavalent Chromium	08/02/17 4:42 PM	Reported
30	N025254-005A	SAMP	1	Hexavalent Chromium	08/02/17 4:51 PM	Reported
31	N025254-006A	SAMP	1	Hexavalent Chromium	08/02/17 5:00 PM	Reported
32	N025254-007A	SAMP	200	Hexavalent Chromium	08/02/17 5:10 PM	Reported
33	N025254-008A	SAMP	1	Hexavalent Chromium	08/02/17 5:19 PM	Reported
34	N025254-011A	SAMP	1	Hexavalent Chromium	08/02/17 5:29 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	08/02/17 5:38 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	08/02/17 5:48 PM	Reported
37	N025254-012A	SAMP	1	Hexavalent Chromium	08/02/17 5:57 PM	Reported
38	N025254-013A	SAMP	1	Hexavalent Chromium	08/02/17 6:07 PM	Reported
39	N025254-014A	SAMP	5	Hexavalent Chromium	08/02/17 6:16 PM	Not Reported
40	N025254-015A	SAMP	1	Hexavalent Chromium	08/02/17 6:26 PM	Reported
41	N025254-016A	SAMP	1	Hexavalent Chromium	08/02/17 6:35 PM	Reported
42	N025254-017A	SAMP	5	Hexavalent Chromium	08/02/17 6:45 PM	Reported

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025254-018A	SAMP	5	Hexavalent Chromium	08/02/17 6:54 PM	Reported
44	N025254-009A	SAMP	10	Hexavalent Chromium	08/02/17 7:04 PM	Reported
45	N025254-009ADUP	DUP	10	Hexavalent Chromium	08/02/17 7:13 PM	Reported
46	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 7:22 PM	Not Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	08/02/17 7:32 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	08/02/17 7:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170802A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Aug/17 20:12:12**
No. of Injections:	**51**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		08/02/2017 13:37	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		08/02/2017 13:49	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		08/02/2017 13:58	Finished	ICB R170724A
13	MB-H2O,MBLK,1	14	1000	Unknown		08/02/2017 14:08	Finished	MB R170724A
14	LCS-H2O,LCS,1	15	1000	Unknown		08/02/2017 14:17	Finished	LCS, IWST-170622D
15	N025284-001B,SAMF	1	1000	Unknown		08/02/2017 14:28	Finished	SAMP,0.1> 10mL
16	N025284-001BMS,MS	2	1000	Unknown		08/02/2017 14:39	Finished	MS (5ppb), IWST-170622D,0.1
17	N025284-001BMSD,M	3	1000	Unknown		08/02/2017 14:48	Finished	MSD (5ppb), IWST-170622D,0
18	N025284-002C,SAMF	4	1000	Unknown		08/02/2017 14:57	Finished	SAMP, 10mL
19	N025284-002CMS,MS	5	1000	Unknown		08/02/2017 15:07	Finished	MS (1ppb), IWST-170622D,10
20	N025254-009A,SAMF	6	1000	Unknown		08/02/2017 15:16	Finished	SAMP, 10mL
21	N025254-010A,SAMF	7	1000	Unknown		08/02/2017 15:26	Finished	SAMP, 10mL
22	N025284-002C,SAMF	8	1000	Unknown		08/02/2017 15:35	Finished	SAMP,2> 10mL
23	CCV-1,CCV1,1,	9	1000	Unknown		08/02/2017 15:45	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	10	1000	Unknown		08/02/2017 15:54	Finished	CCB R170724A
25	N025284-002CMS,MS	11	1000	Unknown		08/02/2017 16:04	Finished	SAMP, 2>10mL
26	N025254-001A,SAMF	12	1000	Unknown		08/02/2017 16:13	Finished	SAMP, 10mL
27	N025254-002A,SAMF	13	1000	Unknown		08/02/2017 16:23	Finished	SAMP, 2>10mL
28	N025254-003A,SAMF	14	1000	Unknown		08/02/2017 16:32	Finished	SAMP, 0.2>10mL
29	N025254-004A,SAMF	15	1000	Unknown		08/02/2017 16:42	Finished	SAMP, 10mL
30	N025254-005A,SAMF	16	1000	Unknown		08/02/2017 16:51	Finished	SAMP, 10mL
31	N025254-006A,SAMF	17	1000	Unknown		08/02/2017 17:00	Finished	SAMP, 10mL
32	N025254-007A,SAMF	18	1000	Unknown		08/02/2017 17:10	Finished	SAMP, 0.05>10mL
33	N025254-008A,SAMF	19	1000	Unknown		08/02/2017 17:19	Finished	SAMP, 10mL
34	N025254-011A,SAMF	20	1000	Unknown		08/02/2017 17:29	Finished	DUP, 10mL
35	CCV-2,CCV,1,	21	1000	Unknown		08/02/2017 17:38	Finished	CCV @5ppb, IWST-170622D
36	CCB-2,CCB,1,	22	1000	Unknown		08/02/2017 17:48	Finished	CCB R170724A
37	N025254-012A,SAMF	23	1000	Unknown		08/02/2017 17:57	Finished	SAMP, 10mL
38	N025254-013A,SAMF	24	1000	Unknown		08/02/2017 18:07	Finished	SAMP, 10mL
39	N025254-014A,SAMF	25	1000	Unknown		08/02/2017 18:16	Finished	SAMP, 2>10mL
40	N025254-015A,SAMF	26	1000	Unknown		08/02/2017 18:26	Finished	SAMP, 10mL
41	N025254-016A,SAMF	27	1000	Unknown		08/02/2017 18:35	Finished	SAMP, 10mL
42	N025254-017A,SAMF	28	1000	Unknown		08/02/2017 18:45	Finished	SAMP,2> 10mL
43	N025254-018A,SAMF	29	1000	Unknown		08/02/2017 18:54	Finished	SAMP,2> 10mL
44	N025254-009A,SAMF	30	1000	Unknown		08/02/2017 19:04	Finished	SAMP, 1>10mL
45	N025254-009ADUP,D	31	1000	Unknown		08/02/2017 19:13	Finished	DUP, 1>10mL
46	N025284-001B,SAMF	32	1000	Unknown		08/02/2017 19:22	Finished	SAMP,0.1> 10mL
47	CCV-3,CCV1,1,	33	1000	Unknown		08/02/2017 19:32	Finished	CCV @10ppb, IWST-170622C
48	CCB-3,CCB,1,	34	1000	Unknown		08/02/2017 19:41	Finished	CCB R170724A
49	SHUTDOWN	35	1000	Unknown		08/02/2017 19:51	Finished	
50	Eluent: R170801A	36	1000	Unknown		n.a.	Finished	Eluent
51	PCR: R170801B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170803A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/03/17 10:08 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/03/17 10:19 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/03/17 10:28 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/03/17 10:38 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/03/17 10:47 AM	Reported
15	MB-R116845	MBLK	1	Hexavalent Chromium	08/03/17 10:57 AM	Reported
16	LCS-R116845	LCS	1	Hexavalent Chromium	08/03/17 11:06 AM	Reported
17	N025313-001A	SAMP	1	Hexavalent Chromium	08/03/17 11:16 AM	Reported
18	N025313-001AMS	MS	1	Hexavalent Chromium	08/03/17 11:25 AM	Reported
19	N025313-001AMSD	MSD	1	Hexavalent Chromium	08/03/17 11:35 AM	Reported
20	N025254-002A	SAMP	20	Hexavalent Chromium	08/03/17 11:44 AM	Reported
21	N025254-002ADUP	DUP	20	Hexavalent Chromium	08/03/17 11:54 AM	Reported
22	N025254-014A	SAMP	1	Hexavalent Chromium	08/03/17 12:03 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	08/03/17 12:36 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	08/03/17 12:47 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170803A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**03/Aug/17 13:27:20**
No. of Injections:	**27**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/03/2017 10:08	Finished	
11	BLANK	2	1000	Unknown		08/03/2017 10:19	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/03/2017 10:28	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/03/2017 10:38	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/03/2017 10:47	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/03/2017 10:57	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/03/2017 11:06	Finished	LCS, IWST-170622D
17	N025313-001A,SAMP	8	1000	Unknown		08/03/2017 11:16	Finished	SAMP,10mL
18	N025313-001AMS,MS	9	1000	Unknown		08/03/2017 11:25	Finished	MS (1ppb), IWST-170622D,10
19	N025313-001AMSD,M	10	1000	Unknown		08/03/2017 11:35	Finished	MSD (1ppb), IWST-170622D,1(
20	N025254-002A,SAMP	11	1000	Unknown		08/03/2017 11:44	Finished	SAMP,0.5> 10mL
21	N025254-002ADUP,D	12	1000	Unknown		08/03/2017 11:54	Finished	DUP,0.5> 10mL
22	N025254-014A,SAMP	13	1000	Unknown		08/03/2017 12:03	Finished	SAMP, 10mL
23	CCV-2,CCV1,1,	15	1000	Unknown		08/03/2017 12:36	Finished	CCV @10ppb, IWST-170622C
24	CCB-2,CCB,1,	16	1000	Unknown		08/03/2017 12:47	Finished	CCB R170724A
25	SHUTDOWN	17	1000	Unknown		08/03/2017 13:04	Finished	
26	Eluent: R170801A	18	1000	Unknown		n.a.	Finished	Eluent
27	PCR: R170801B	19	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170804A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/04/17 9:27 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/04/17 9:37 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/04/17 9:47 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/04/17 9:56 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/04/17 10:06 AM	Reported
15	MB-R116882	MBLK	1	Hexavalent Chromium	08/04/17 10:15 AM	Reported
16	LCS-R116882	LCS	1	Hexavalent Chromium	08/04/17 10:25 AM	Reported
17	N025313-002A	SAMP	100	Hexavalent Chromium	08/04/17 10:34 AM	Reported
18	N025313-002ADUP	DUP	100	Hexavalent Chromium	08/04/17 10:44 AM	Reported
19	N025313-002AMS	MS	100	Hexavalent Chromium	08/04/17 10:53 AM	Reported
20	N025313-002AMSD	MSD	100	Hexavalent Chromium	08/04/17 11:03 AM	Reported
21	N025195-005A	SAMP	1	Hexavalent Chromium	08/04/17 11:12 AM	Not Reported
22	N025195-005AMS	MS	1	Hexavalent Chromium	08/04/17 11:22 AM	Not Reported
23	N025195-006A	SAMP	1	Hexavalent Chromium	08/04/17 11:31 AM	Not Reported
24	N025195-006AMS	MS	1	Hexavalent Chromium	08/04/17 11:40 AM	Not Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	08/04/17 11:50 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	08/04/17 11:59 AM	Reported
27	N025196-002A	SAMP	1	Hexavalent Chromium	08/04/17 12:09 PM	Not Reported
28	N025196-002AMS	MS	1	Hexavalent Chromium	08/04/17 12:18 PM	Not Reported
29	N025196-014A	SAMP	1	Hexavalent Chromium	08/04/17 12:28 PM	Not Reported
30	N025196-014AMS	MS	1	Hexavalent Chromium	08/04/17 12:37 PM	Not Reported
31	N025197-006A	SAMP	1	Hexavalent Chromium	08/04/17 12:47 PM	Not Reported
32	N025197-006AMS	MS	1	Hexavalent Chromium	08/04/17 12:56 PM	Not Reported
33	N025217-010A	SAMP	1	Hexavalent Chromium	08/04/17 1:06 PM	Not Reported
34	N025217-010AMS	MS	1	Hexavalent Chromium	08/04/17 1:15 PM	Not Reported
35	CCV-3	CCV	1	Hexavalent Chromium	08/04/17 1:25 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	08/04/17 1:34 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170804A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**04/Aug/17 14:04:49**
No. of Injections:	**39**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/04/2017 09:27	Finished	
11	BLANK	2	1000	Unknown		08/04/2017 09:37	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/04/2017 09:47	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/04/2017 09:56	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/04/2017 10:06	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/04/2017 10:15	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/04/2017 10:25	Finished	LCS, IWST-170622D
17	N025313-002A,SAMF	8	1000	Unknown		08/04/2017 10:34	Finished	SAMP,0.1>10mL
18	N025313-002ADUP,D	9	1000	Unknown		08/04/2017 10:44	Finished	DUP,0.1>10mL
19	N025313-002AMS,MS	10	1000	Unknown		08/04/2017 10:53	Finished	MS (5ppb), IWST-170622D,0.1
20	N025313-002AMSD,M	11	1000	Unknown		08/04/2017 11:03	Finished	MSD (5ppb), IWST-170622D,0
21	N025195-005A,SAMF	12	1000	Unknown		08/04/2017 11:12	Finished	SAMP,10mL
22	N025195-005AMS,MS	13	1000	Unknown		08/04/2017 11:22	Finished	MS (1ppb), IWST-170622D,10
23	N025195-006A,SAMF	14	1000	Unknown		08/04/2017 11:31	Finished	SAMP,10mL
24	N025195-006AMS,MS	15	1000	Unknown		08/04/2017 11:40	Finished	MS (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	16	1000	Unknown		08/04/2017 11:50	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		08/04/2017 11:59	Finished	CCB R170724A
27	N025196-002A,SAMF	18	1000	Unknown		08/04/2017 12:09	Finished	SAMP,10mL
28	N025196-002AMS,MS	19	1000	Unknown		08/04/2017 12:18	Finished	MS (1ppb), IWST-170622D,10
29	N025196-014A,SAMF	20	1000	Unknown		08/04/2017 12:28	Finished	SAMP,10mL
30	N025196-014AMS,MS	21	1000	Unknown		08/04/2017 12:37	Finished	MS (1ppb), IWST-170622D,10
31	N025197-006A,SAMF	22	1000	Unknown		08/04/2017 12:47	Finished	SAMP,10mL
32	N025197-006AMS,MS	23	1000	Unknown		08/04/2017 12:56	Finished	MS (1ppb), IWST-170622D,10
33	N025217-010A,SAMF	24	1000	Unknown		08/04/2017 13:06	Finished	SAMP,10mL
34	N025217-010AMS,MS	25	1000	Unknown		08/04/2017 13:15	Finished	MS (1ppb), IWST-170622D,10
35	CCV-3,CCV,1,	26	1000	Unknown		08/04/2017 13:25	Finished	CCV @5ppb, IWST-170622C
36	CCB-3,CCB,1,	27	1000	Unknown		08/04/2017 13:34	Finished	CCB R170724A
37	SHUTDOWN	28	1000	Unknown		08/04/2017 13:43	Finished	
38	Eluent: R170801A	29	1000	Unknown		n.a.	Finished	Eluent
39	PCR: R170801B	30	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/3/17
Time Prepared: 0959
Prepared By: MA

Reagent ID:
Sulfuric Acid: 9290
Diphenylcarbazide: CIN-170620A
NH4OH + NH4SO4 eluent: M170801A
NH4OH + NH4SO4 buffer: M170724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025317-001A	9.31	-	~250mL	~250 mL		
2)	" 2A	9.32	-	"	"		
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared:
Time Prepared:
Prepared By:

Reagent ID:
Sulfuric Acid:
Diphenylcarbazide:
NH4OH + NH4SO4 eluent:
NH4OH + NH4SO4 buffer:

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)							
2)							
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

jba 8/7/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/2/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0548	0.2647	1.3349	2.6448	3.9550	5.2553	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST160817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV** SampType: **ICV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **116845**
Client ID: **ICV** Batch ID: **R116845** TestNo: **EPA 218.6** Analysis Date: **8/2/2017** SeqNo: **2719417**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb** SampType: **CCV2** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **116845**
Client ID: **ZZZZZZ** Batch ID: **R116845** TestNo: **EPA 218.6** Analysis Date: **8/2/2017** SeqNo: **2719418**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1** SampType: **CCV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **116845**
Client ID: **CCV** Batch ID: **R116845** TestNo: **EPA 218.6** Analysis Date: **8/3/2017** SeqNo: **2719420**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.992	0.20	5.000	0	99.8	95	105				

Sample ID **PQL@0.2ppb** SampType: **CCV2** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **116845**
Client ID: **ZZZZZZ** Batch ID: **R116845** TestNo: **EPA 218.6** Analysis Date: **8/3/2017** SeqNo: **2719421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.192	0.20	0.2000	0	96.0	80	120				

Sample ID **CCV-2** SampType: **CCV1** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **116845**
Client ID: **ZZZZZZ** Batch ID: **R116845** TestNo: **EPA 218.6** Analysis Date: **8/3/2017** SeqNo: **2719431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.846	0.20	10.00	0	98.5	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **ICV**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2721668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **ZZZZZZ**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2721669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **CCV**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/4/2017**	SeqNo: **2721671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.019	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **ZZZZZZ**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/4/2017**	SeqNo: **2721672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.205	0.20	0.2000	0	103	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **ZZZZZZ**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/4/2017**	SeqNo: **2721680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.939	0.20	10.00	0	99.4	95	105				

Qualifiers:

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

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3** SampType: **CCV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **116882**
Client ID: **CCV** Batch ID: **R116882** TestNo: **EPA 218.6** Analysis Date: **8/4/2017** SeqNo: **2721682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.086	0.20	5.000	0	102	95	105				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116845**
Client ID: **ICB**	Batch ID: **R116845**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2719419**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116845**
Client ID: **CCB**	Batch ID: **R116845**	TestNo: **EPA 218.6**		Analysis Date: **8/3/2017**	SeqNo: **2719422**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116845**
Client ID: **CCB**	Batch ID: **R116845**	TestNo: **EPA 218.6**		Analysis Date: **8/3/2017**	SeqNo: **2719432**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **ICB**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2721670**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **CCB**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/4/2017**	SeqNo: **2721673**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **CCB**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/4/2017**	SeqNo: **2721681**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **116882**
Client ID: **CCB**	Batch ID: **R116882**	TestNo: **EPA 218.6**		Analysis Date: **8/4/2017**	SeqNo: **2721683**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/3/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.306	
CCV-2	4.298	
Average	4.302	
Actual RT Window	4.222 - 4.382	
Applied RT Window	4.102 - 4.502	
MB-R116845	N.A.	N.A.
LCS-R116845	4.298	PASS
N025313-001A	N.A.	N.A.
N025313-001AMS	4.248	PASS
N025313-001AMSD	4.248	PASS
N025254-002A	4.298	PASS
N025254-002ADUP	4.298	PASS
N025254-014A	4.273	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/4/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.298	
CCV-2	4.290	
CCV-3	4.281	
Average	4.290	
Actual RT Window	4.210 - 4.370	
Applied RT Window	4.090 - 4.490	
MB-R116882	N.A.	N.A.
LCS-R116882	4.298	PASS
N025313-002A	4.290	PASS
N025313-002ADUP	4.290	PASS
N025313-002AMS	4.290	PASS
N025313-002AMSD	4.290	PASS
N025195-005A	N.A.	N.A.
N025195-005AMS	4.290	PASS
N025195-006A	4.273	PASS
N025195-006AMS	4.281	PASS
N025196-002A	4.290	PASS
N025196-002AMS	4.281	PASS
N025196-014A	N.A.	N.A.
N025196-014AMS	4.281	PASS
N025197-006A	4.265	PASS
N025197-006AMS	4.281	PASS
N025217-010A	4.281	PASS
N025217-010AMS	4.281	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	08/02/17 1:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/02/17 1:49 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	08/02/17 1:58 PM	Reported
13	MB-R116844	MBLK	1	Hexavalent Chromium	08/02/17 2:08 PM	Reported
14	LCS-R116844	LCS	1	Hexavalent Chromium	08/02/17 2:17 PM	Reported
15	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 2:28 PM	Reported
16	N025284-001BMS	MS	100	Hexavalent Chromium	08/02/17 2:39 PM	Reported
17	N025284-001BMSD	MSD	100	Hexavalent Chromium	08/02/17 2:48 PM	Reported
18	N025284-002C	SAMP	1	Hexavalent Chromium	08/02/17 2:57 PM	Reported
19	N025284-002CMS	MS	1	Hexavalent Chromium	08/02/17 3:07 PM	Reported
20	N025254-009A	SAMP	1	Hexavalent Chromium	08/02/17 3:16 PM	Not Reported
21	N025254-010A	SAMP	1	Hexavalent Chromium	08/02/17 3:26 PM	Reported
22	N025284-002C	SAMP	5	Hexavalent Chromium	08/02/17 3:35 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	08/02/17 3:45 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	08/02/17 3:54 PM	Reported
25	N025284-002CMS	MS	5	Hexavalent Chromium	08/02/17 4:04 PM	Not Reported
26	N025254-001A	SAMP	1	Hexavalent Chromium	08/02/17 4:13 PM	Reported
27	N025254-002A	SAMP	5	Hexavalent Chromium	08/02/17 4:23 PM	Not Reported
28	N025254-003A	SAMP	50	Hexavalent Chromium	08/02/17 4:32 PM	Reported
29	N025254-004A	SAMP	1	Hexavalent Chromium	08/02/17 4:42 PM	Reported
30	N025254-005A	SAMP	1	Hexavalent Chromium	08/02/17 4:51 PM	Reported
31	N025254-006A	SAMP	1	Hexavalent Chromium	08/02/17 5:00 PM	Reported
32	N025254-007A	SAMP	200	Hexavalent Chromium	08/02/17 5:10 PM	Reported
33	N025254-008A	SAMP	1	Hexavalent Chromium	08/02/17 5:19 PM	Reported
34	N025254-011A	SAMP	1	Hexavalent Chromium	08/02/17 5:29 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	08/02/17 5:38 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	08/02/17 5:48 PM	Reported
37	N025254-012A	SAMP	1	Hexavalent Chromium	08/02/17 5:57 PM	Reported
38	N025254-013A	SAMP	1	Hexavalent Chromium	08/02/17 6:07 PM	Reported
39	N025254-014A	SAMP	5	Hexavalent Chromium	08/02/17 6:16 PM	Not Reported
40	N025254-015A	SAMP	1	Hexavalent Chromium	08/02/17 6:26 PM	Reported
41	N025254-016A	SAMP	1	Hexavalent Chromium	08/02/17 6:35 PM	Reported
42	N025254-017A	SAMP	5	Hexavalent Chromium	08/02/17 6:45 PM	Reported

08/15/2017 rba 8/4/2017

IC-07 RBA 8/4/2017 1:24 PM

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025254-018A	SAMP	5	Hexavalent Chromium	08/02/17 6:54 PM	Reported
44	N025254-009A	SAMP	10	Hexavalent Chromium	08/02/17 7:04 PM	Reported
45	N025254-009ADUP	DUP	10	Hexavalent Chromium	08/02/17 7:13 PM	Reported
46	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 7:22 PM	Not Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	08/02/17 7:32 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	08/02/17 7:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170802A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Aug/17 20:12:12**
No. of Injections:	**51**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		08/02/2017 13:37	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		08/02/2017 13:49	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		08/02/2017 13:58	Finished	ICB R170724A
13	MB-H2O,MBLK,1	14	1000	Unknown		08/02/2017 14:08	Finished	MB R170724A
14	LCS-H2O,LCS,1	15	1000	Unknown		08/02/2017 14:17	Finished	LCS, IWST-170622D
15	N025284-001B,SAMF	1	1000	Unknown		08/02/2017 14:28	Finished	SAMP,0.1> 10mL
16	N025284-001BMS,MS	2	1000	Unknown		08/02/2017 14:39	Finished	MS (5ppb), IWST-170622D,0.1
17	N025284-001BMSD,M	3	1000	Unknown		08/02/2017 14:48	Finished	MSD (5ppb), IWST-170622D,0.
18	N025284-002C,SAMF	4	1000	Unknown		08/02/2017 14:57	Finished	SAMP, 10mL
19	N025284-002CMS,MS	5	1000	Unknown		08/02/2017 15:07	Finished	MS (1ppb), IWST-170622D,10
20	N025254-009A,SAMF	6	1000	Unknown		08/02/2017 15:16	Finished	SAMP, 10mL
21	N025254-010A,SAMF	7	1000	Unknown		08/02/2017 15:26	Finished	SAMP, 10mL
22	N025284-002C,SAMF	8	1000	Unknown		08/02/2017 15:35	Finished	SAMP,2> 10mL
23	CCV-1,CCV1,1,	9	1000	Unknown		08/02/2017 15:45	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	10	1000	Unknown		08/02/2017 15:54	Finished	CCB R170724A
25	N025284-002CMS,MS	11	1000	Unknown		08/02/2017 16:04	Finished	SAMP, 2>10mL
26	N025254-001A,SAMF	12	1000	Unknown		08/02/2017 16:13	Finished	SAMP, 10mL
27	N025254-002A,SAMF	13	1000	Unknown		08/02/2017 16:23	Finished	SAMP, 2>10mL
28	N025254-003A,SAMF	14	1000	Unknown		08/02/2017 16:32	Finished	SAMP, 0.2>10mL
29	N025254-004A,SAMF	15	1000	Unknown		08/02/2017 16:42	Finished	SAMP, 10mL
30	N025254-005A,SAMF	16	1000	Unknown		08/02/2017 16:51	Finished	SAMP, 10mL
31	N025254-006A,SAMF	17	1000	Unknown		08/02/2017 17:00	Finished	SAMP, 10mL
32	N025254-007A,SAMF	18	1000	Unknown		08/02/2017 17:10	Finished	SAMP, 0.05>10mL
33	N025254-008A,SAMF	19	1000	Unknown		08/02/2017 17:19	Finished	SAMP, 10mL
34	N025254-011A,SAMF	20	1000	Unknown		08/02/2017 17:29	Finished	DUP, 10mL
35	CCV-2,CCV,1,	21	1000	Unknown		08/02/2017 17:38	Finished	CCV @5ppb, IWST-170622D
36	CCB-2,CCB,1,	22	1000	Unknown		08/02/2017 17:48	Finished	CCB R170724A
37	N025254-012A,SAMF	23	1000	Unknown		08/02/2017 17:57	Finished	SAMP, 10mL
38	N025254-013A,SAMF	24	1000	Unknown		08/02/2017 18:07	Finished	SAMP, 10mL
39	N025254-014A,SAMF	25	1000	Unknown		08/02/2017 18:16	Finished	SAMP, 2>10mL
40	N025254-015A,SAMF	26	1000	Unknown		08/02/2017 18:26	Finished	SAMP, 10mL
41	N025254-016A,SAMF	27	1000	Unknown		08/02/2017 18:35	Finished	SAMP, 10mL
42	N025254-017A,SAMF	28	1000	Unknown		08/02/2017 18:45	Finished	SAMP,2> 10mL
43	N025254-018A,SAMF	29	1000	Unknown		08/02/2017 18:54	Finished	SAMP,2> 10mL
44	N025254-009A,SAMF	30	1000	Unknown		08/02/2017 19:04	Finished	SAMP, 1>10mL
45	N025254-009ADUP,D	31	1000	Unknown		08/02/2017 19:13	Finished	DUP, 1>10mL
46	N025284-001B,SAMF	32	1000	Unknown		08/02/2017 19:22	Finished	SAMP,0.1> 10mL
47	CCV-3,CCV1,1,	33	1000	Unknown		08/02/2017 19:32	Finished	CCV @10ppb, IWST-170622C
48	CCB-3,CCB,1,	34	1000	Unknown		08/02/2017 19:41	Finished	CCB R170724A
49	SHUTDOWN	35	1000	Unknown		08/02/2017 19:51	Finished	
50	Eluent: R170801A	36	1000	Unknown		n.a.	Finished	Eluent
51	PCR: R170801B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

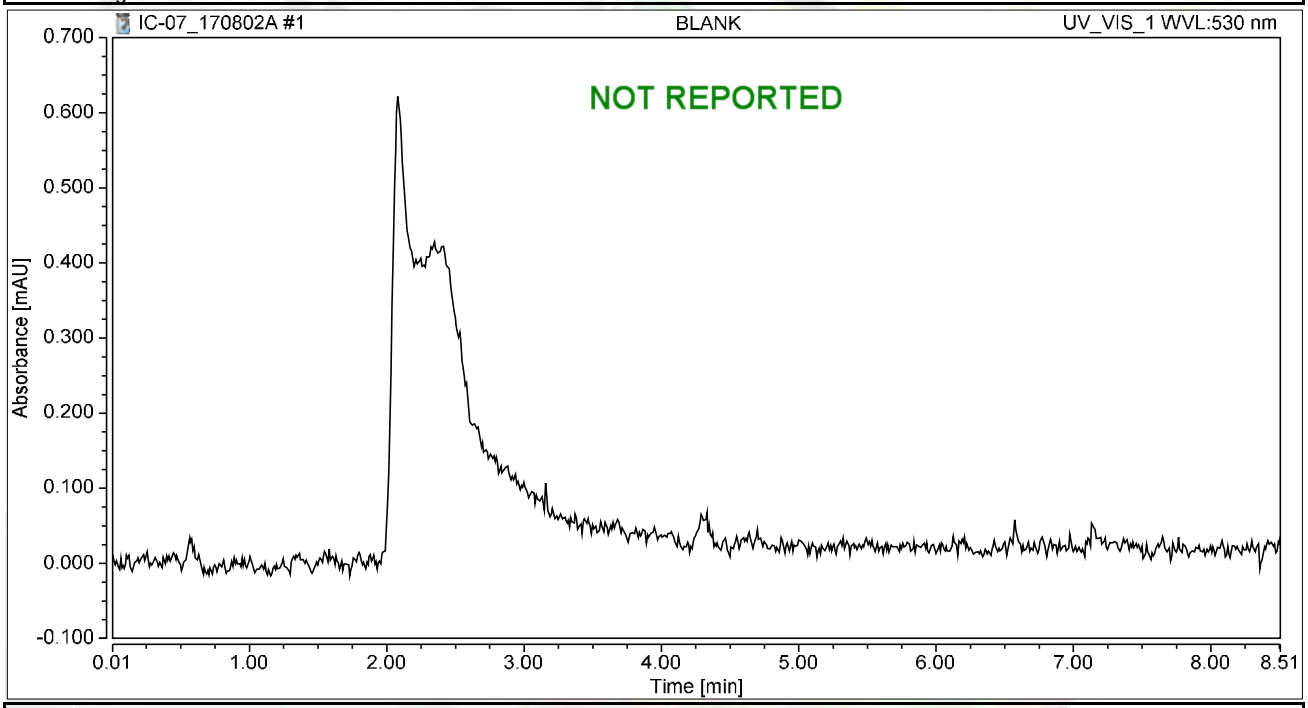
rba 8/4/2017

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

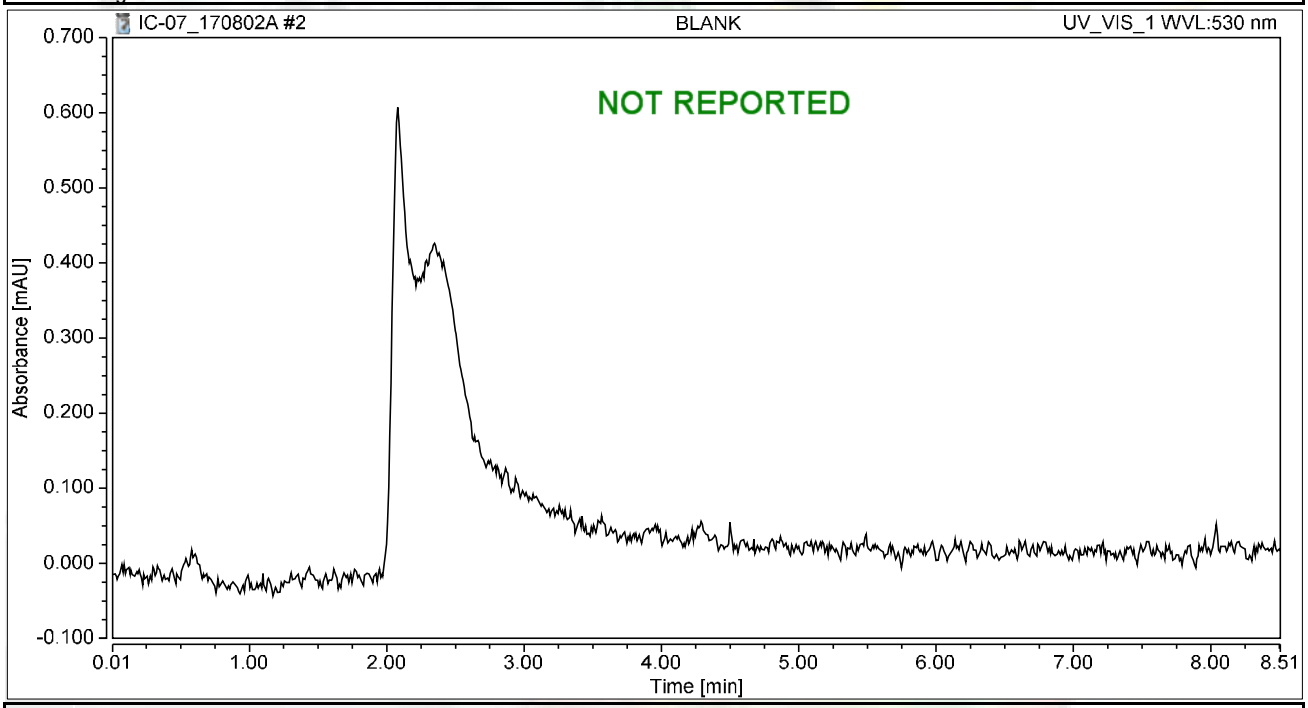
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

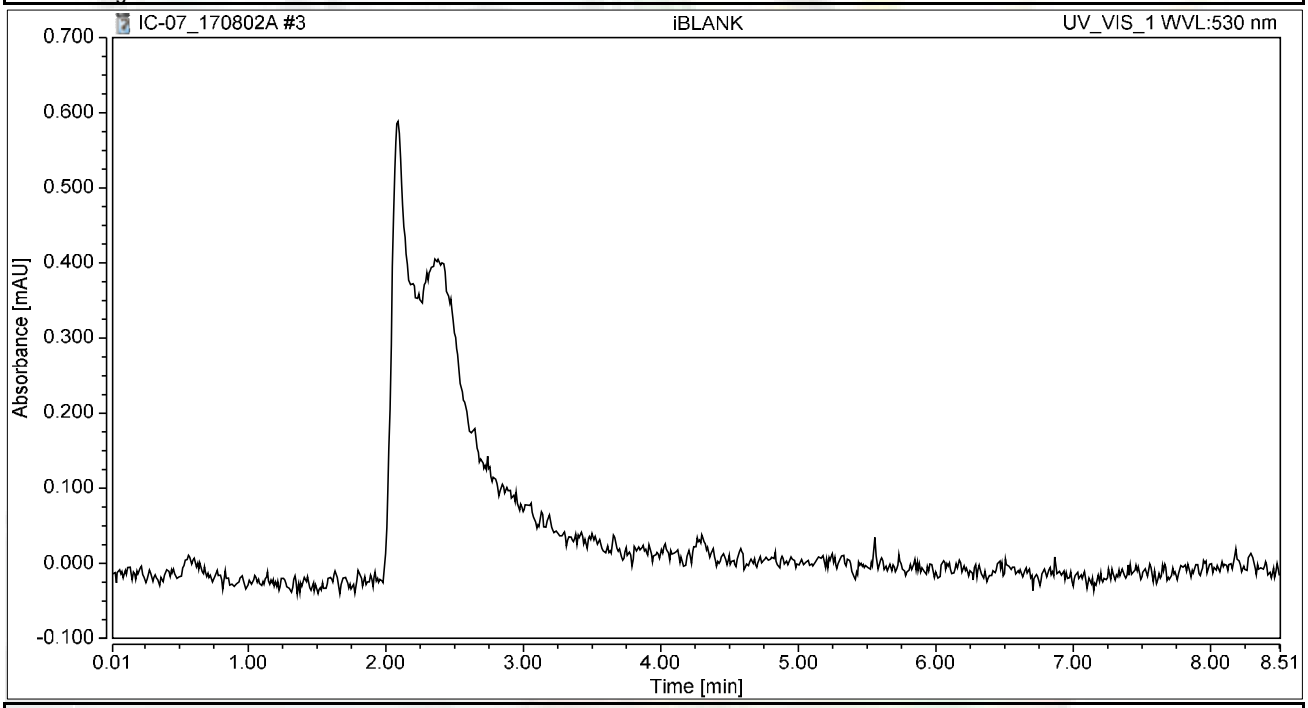
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

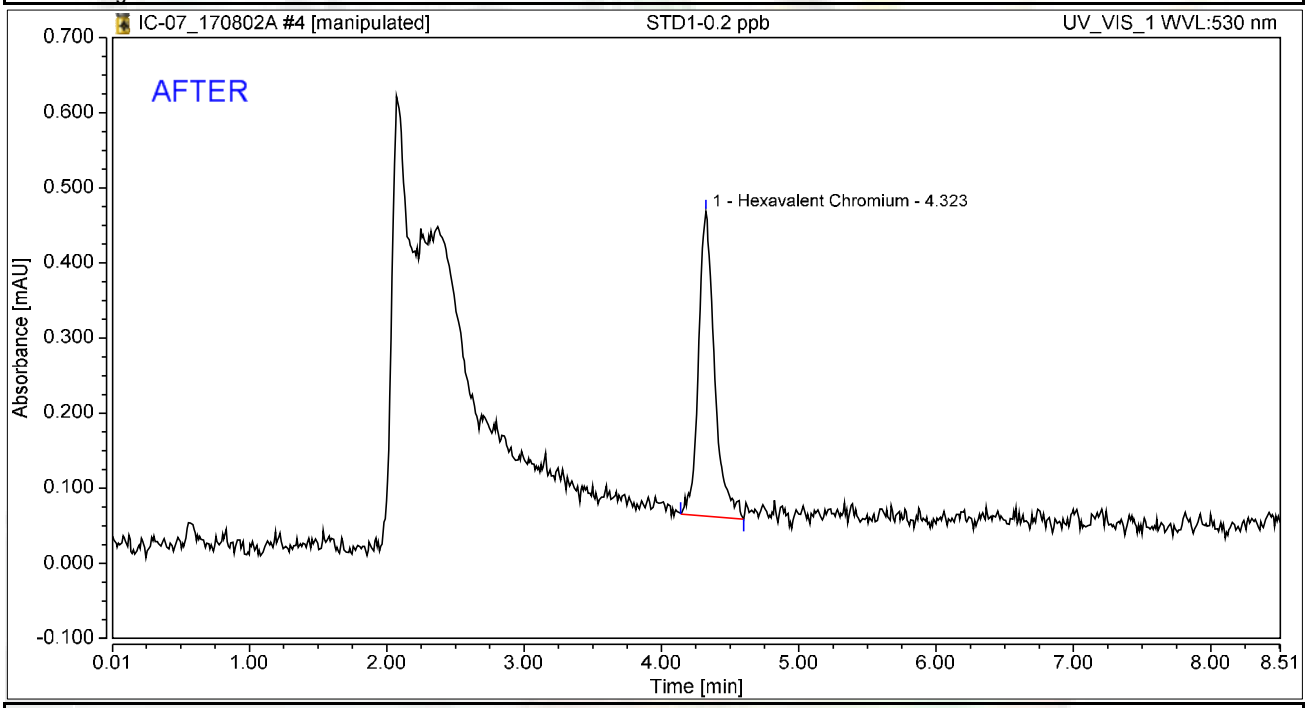
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.055	0.405	100.00	100.00	0.2082
Total:			**0.055**	**0.405**	**100.00**	**100.00**	

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Reviewed by:

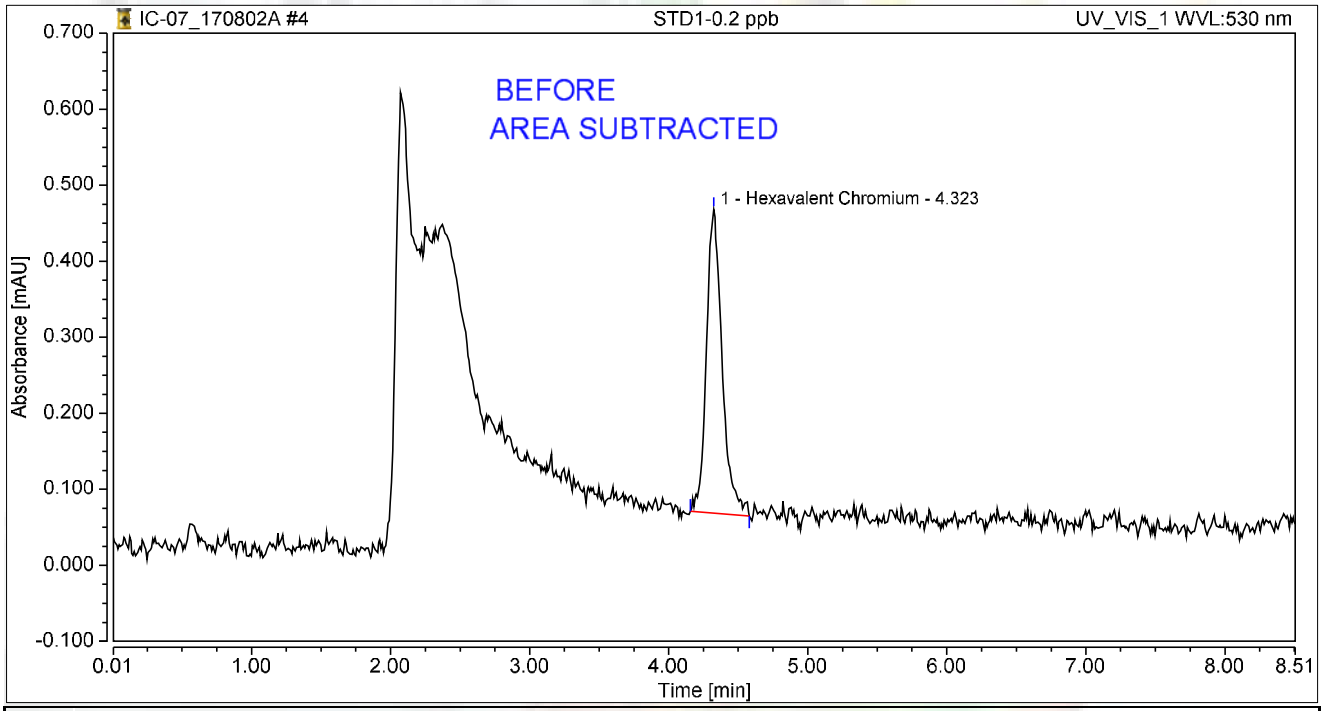
08/15/20/17

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.052	0.399	100.00	100.00	0.1970
Total:			**0.052**	**0.399**	**100.00**	**100.00**	

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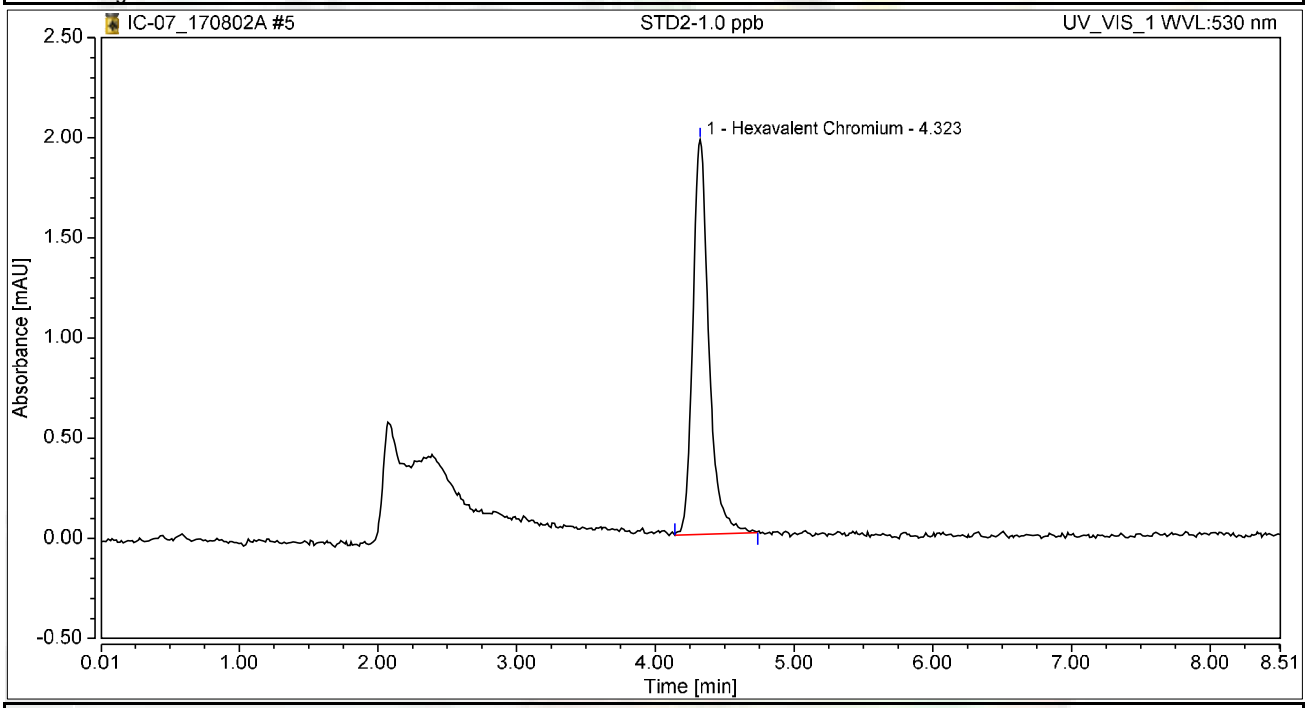
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

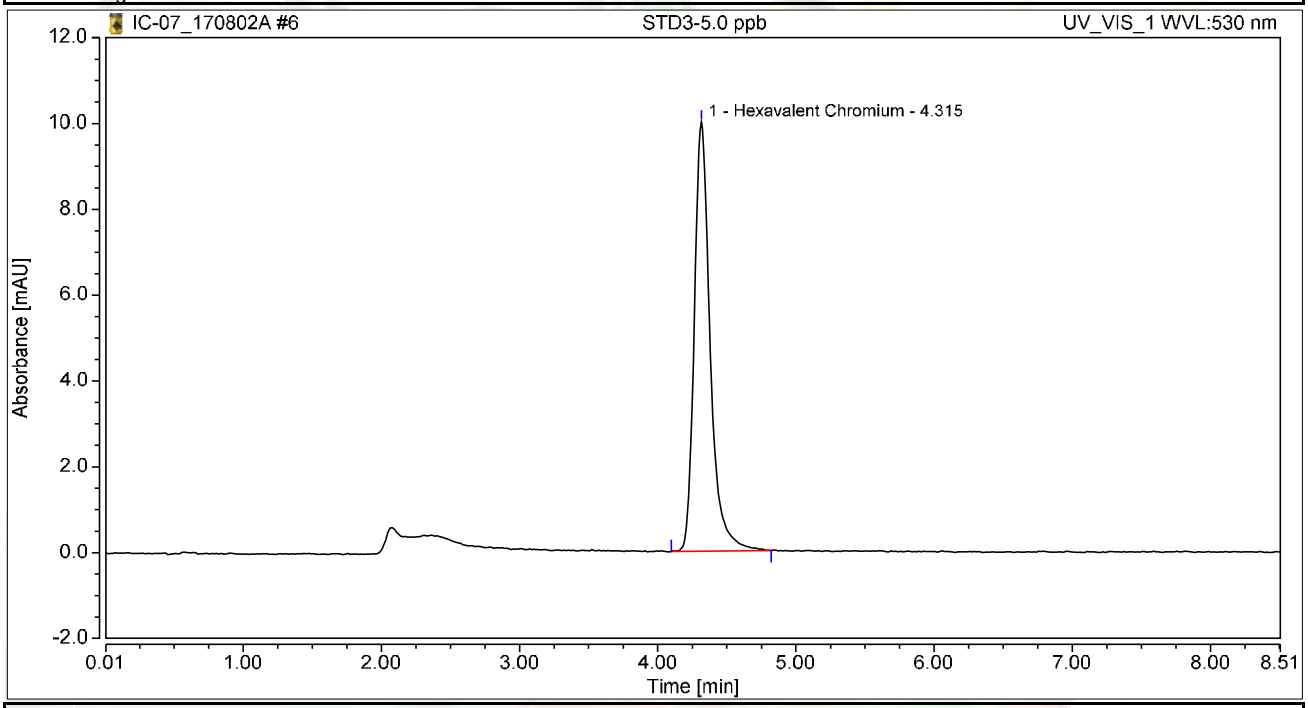
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.265	1.972	100.00	100.00	1.0051
Total:			**0.265**	**1.972**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

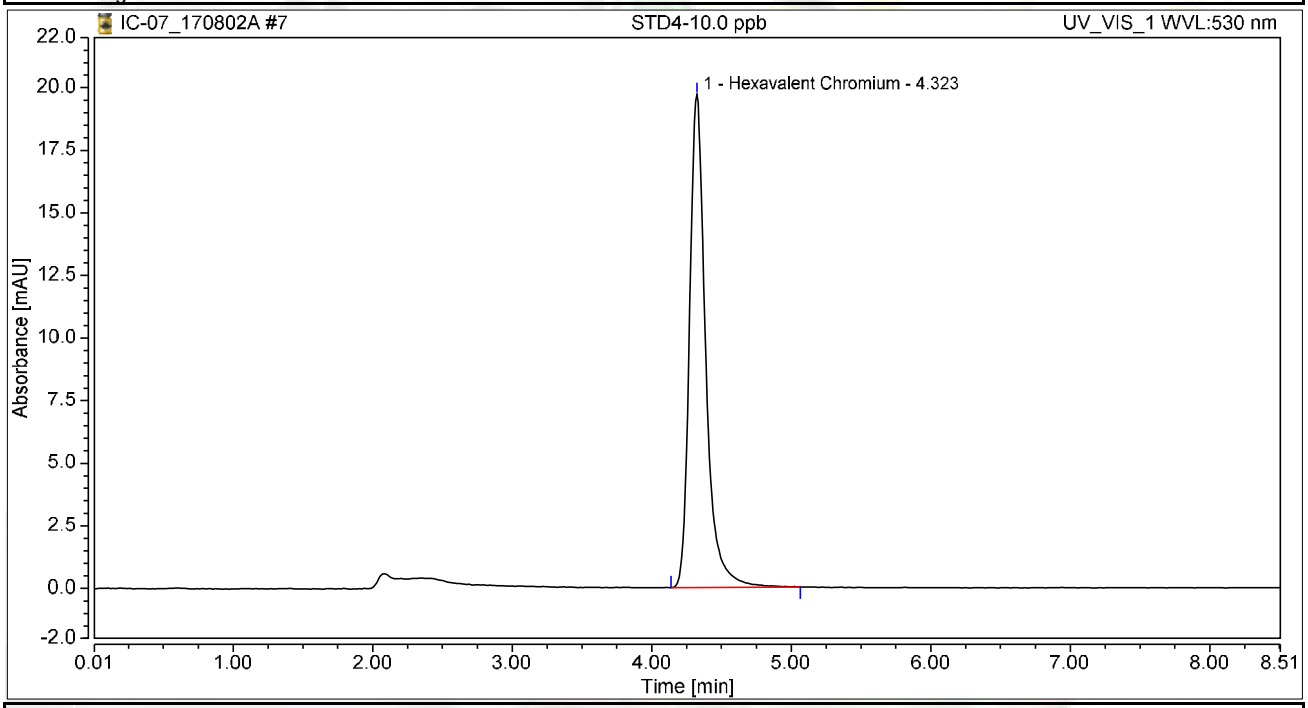
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	1.335	9.999	100.00	100.00	5.0677
Total:			**1.335**	**9.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

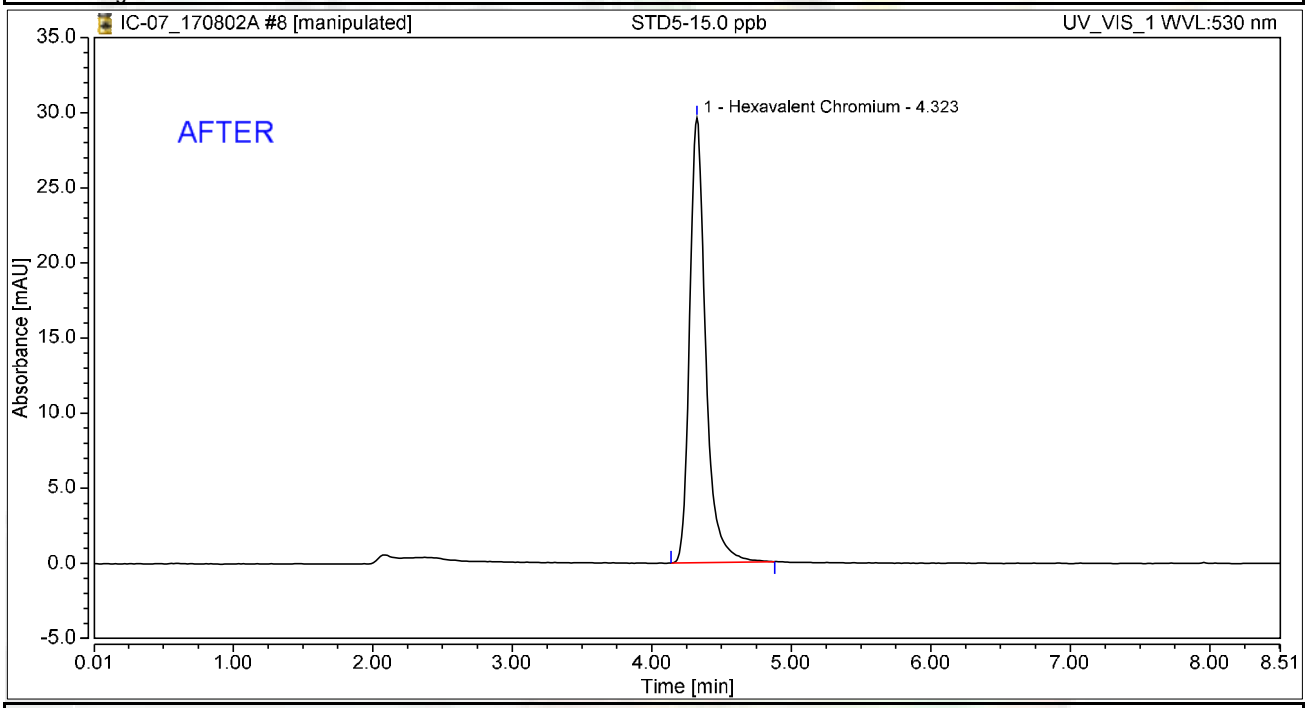
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	2.645	19.695	100.00	100.00	10.0407
Total:			**2.645**	**19.695**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	3.955	29.622	100.00	100.00	15.0148
Total:			**3.955**	**29.622**	**100.00**	**100.00**	

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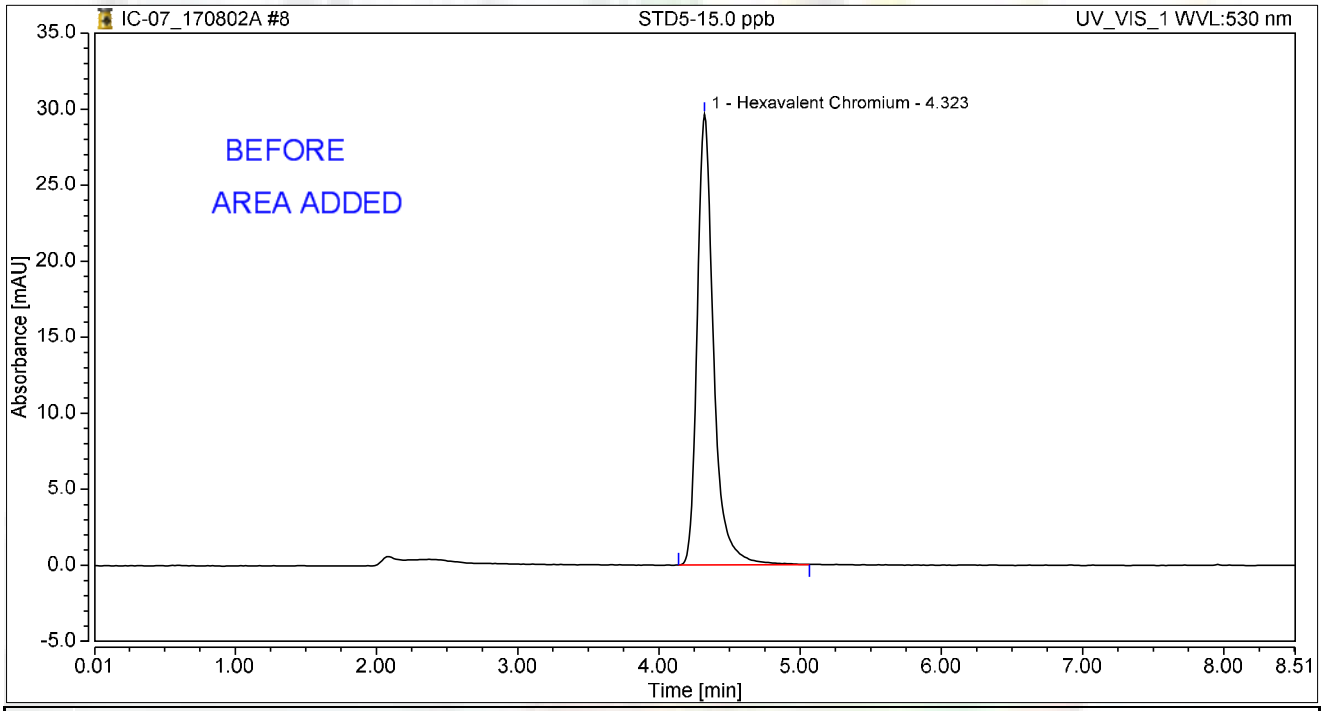
08/15/20/17

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	3.982	29.636	100.00	100.00	15.0336
Total:			**3.982**	**29.636**	**100.00**	**100.00**	

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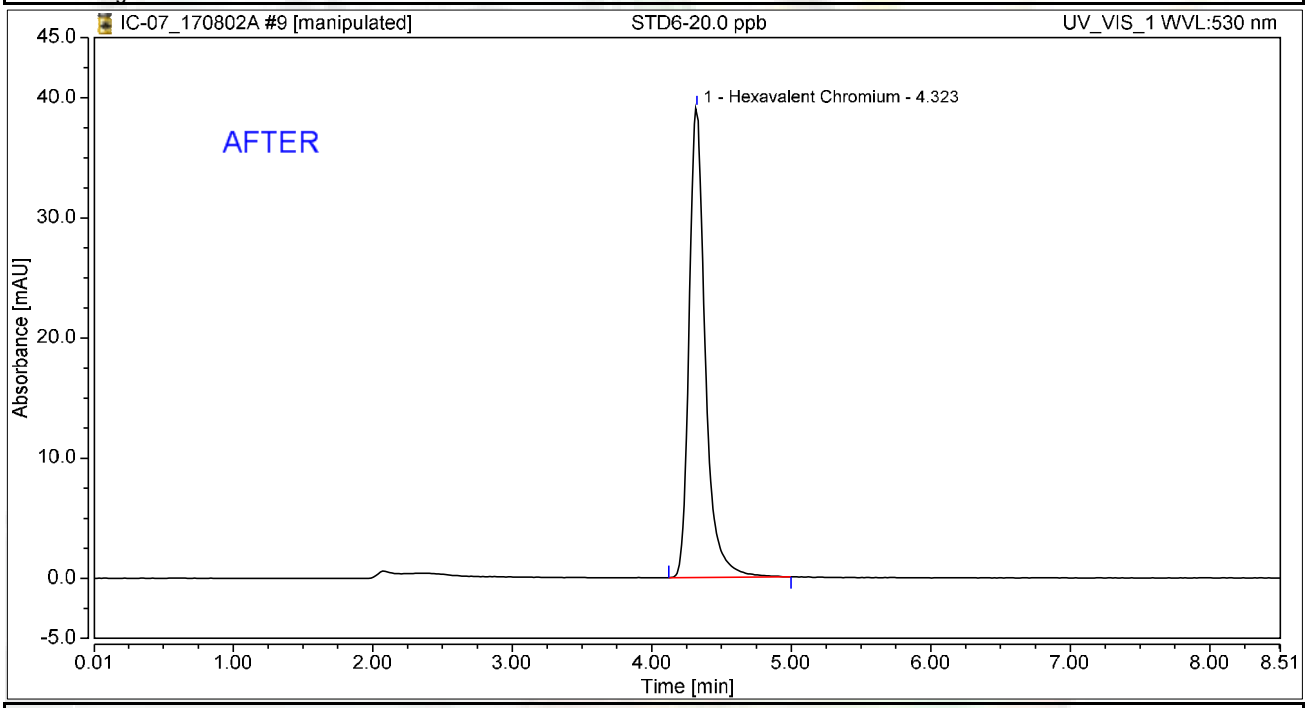
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	5.255	39.087	100.00	100.00	19.9513
Total:			**5.255**	**39.087**	**100.00**	**100.00**	

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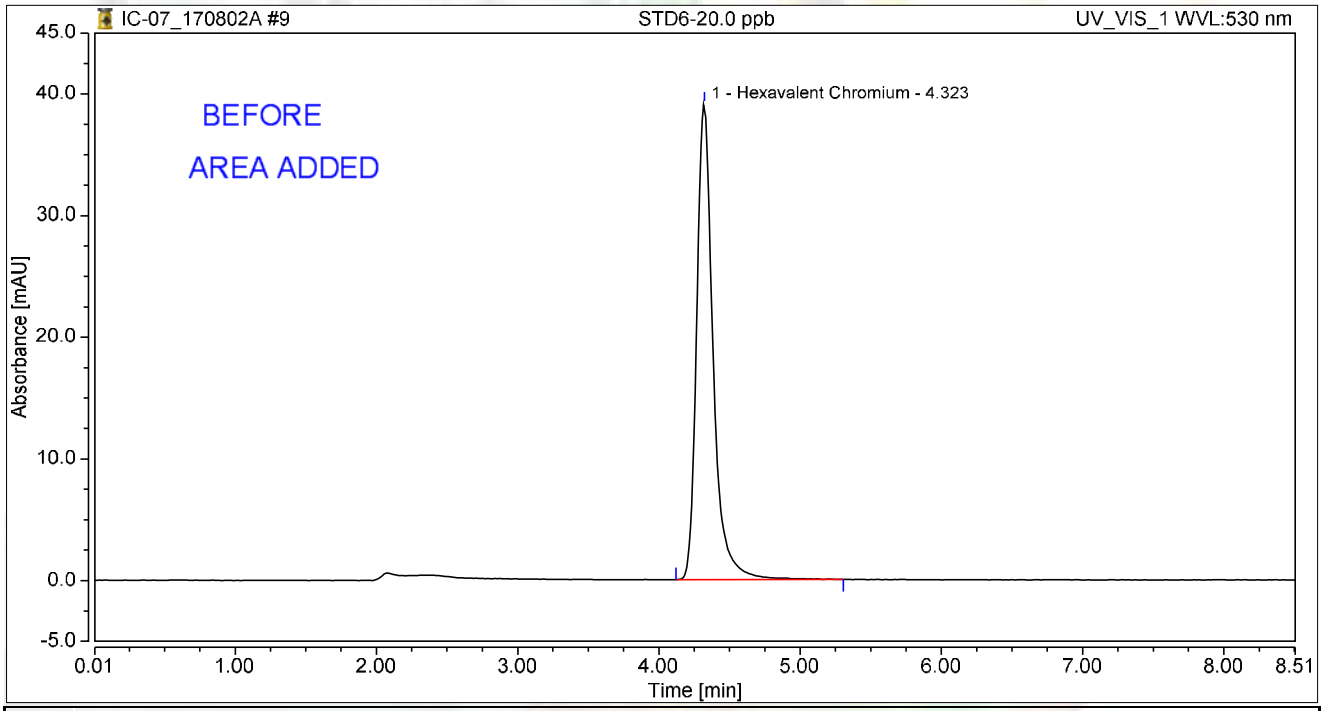
08/15/20/17

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	5.291	39.100	100.00	100.00	19.9729
Total:			**5.291**	**39.100**	**100.00**	**100.00**	

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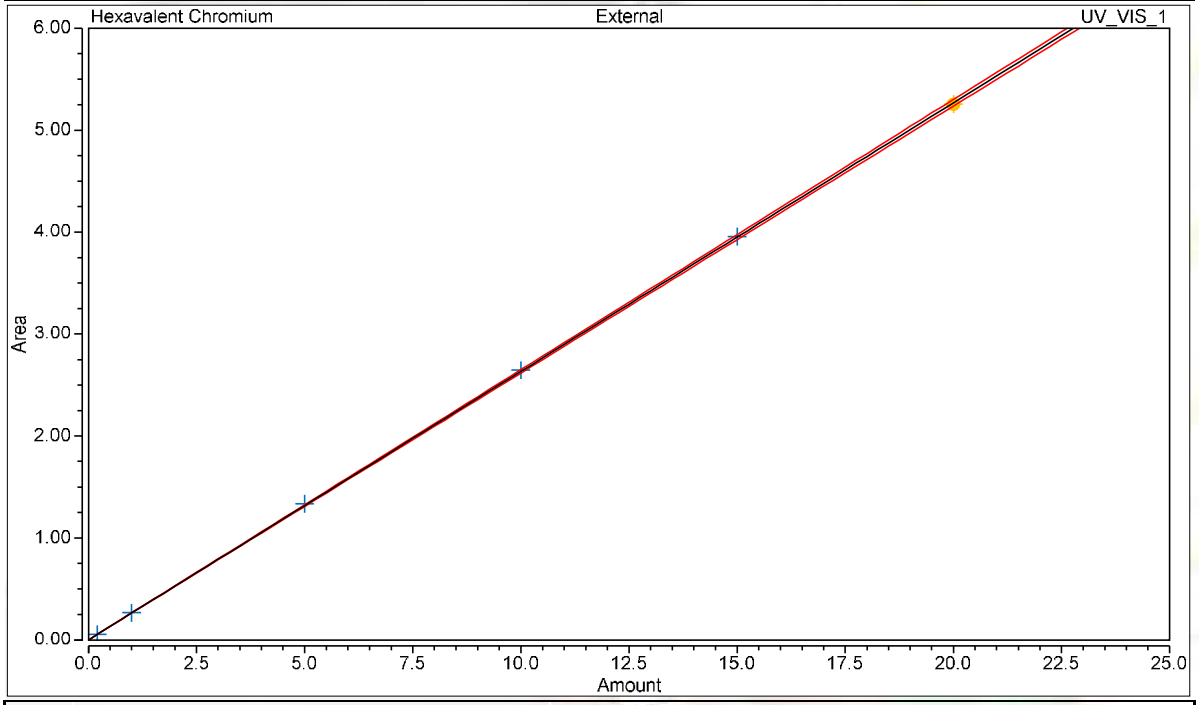
Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2634
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99997

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

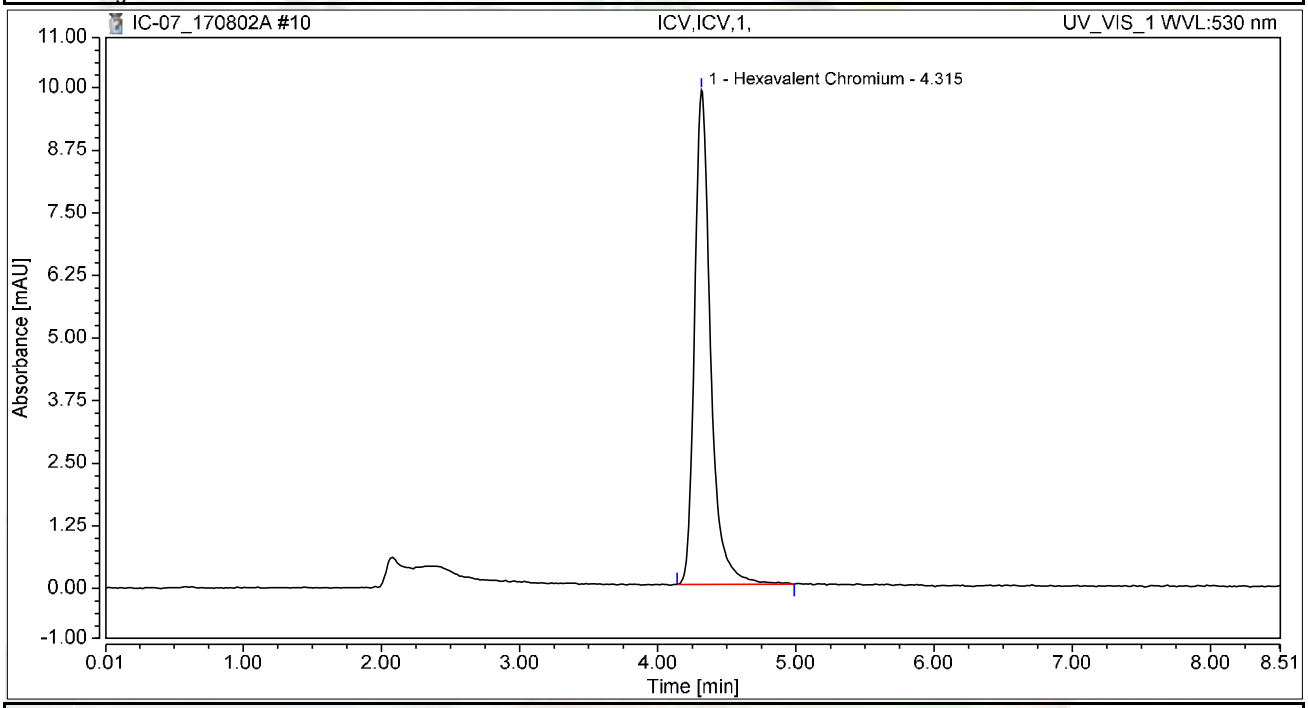
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0548	0.055	0.405
5	STD2-1.0 ppb	02	1.0000	0.2647	0.265	1.972
6	STD3-5.0 ppb	03	5.0000	1.3349	1.335	9.999
7	STD4-10.0 ppb	04	10.0000	2.6448	2.645	19.695
8	STD5-15.0 ppb	05	15.0000	3.9550	3.955	29.622
9	STD6-20.0 ppb	06	20.0000	5.2553	5.255	39.087

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

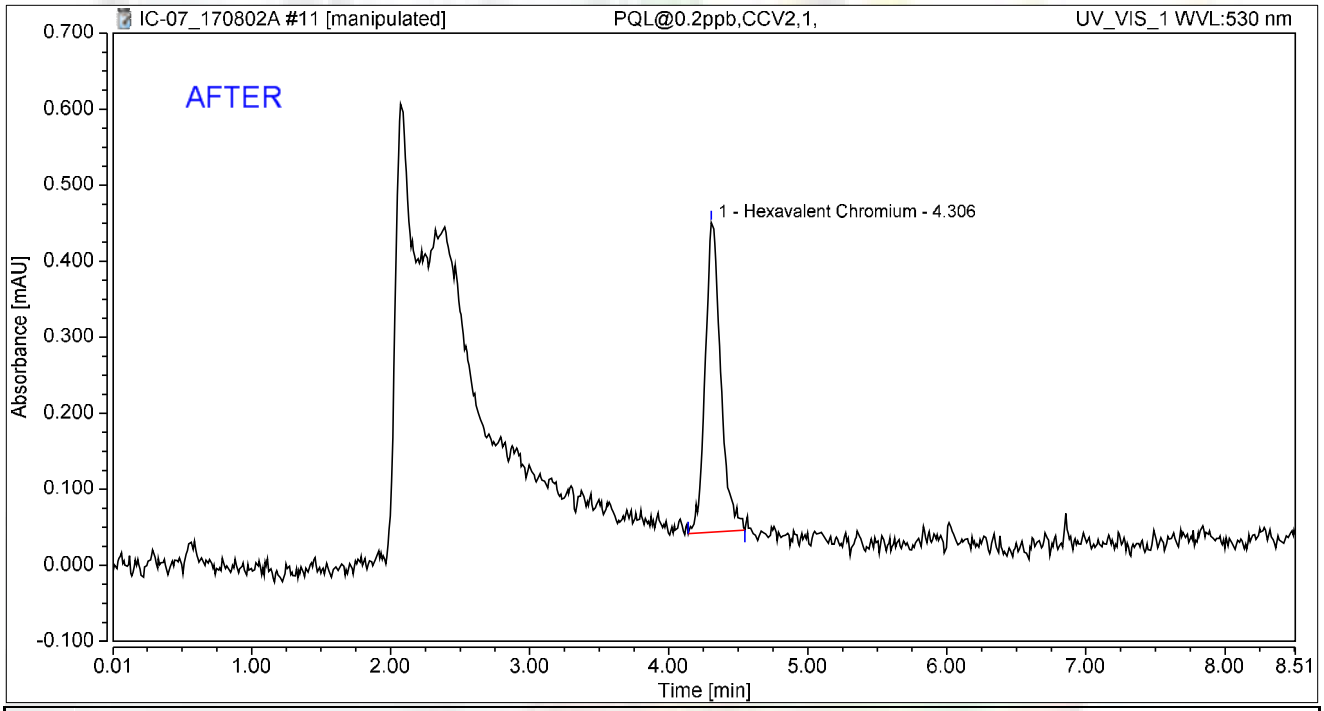
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	1.331	9.873	100.00	100.00	5.0542
Total:			**1.331**	**9.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.053	0.407	100.00	100.00	0.2013
Total:			**0.053**	**0.407**	**100.00**	**100.00**	

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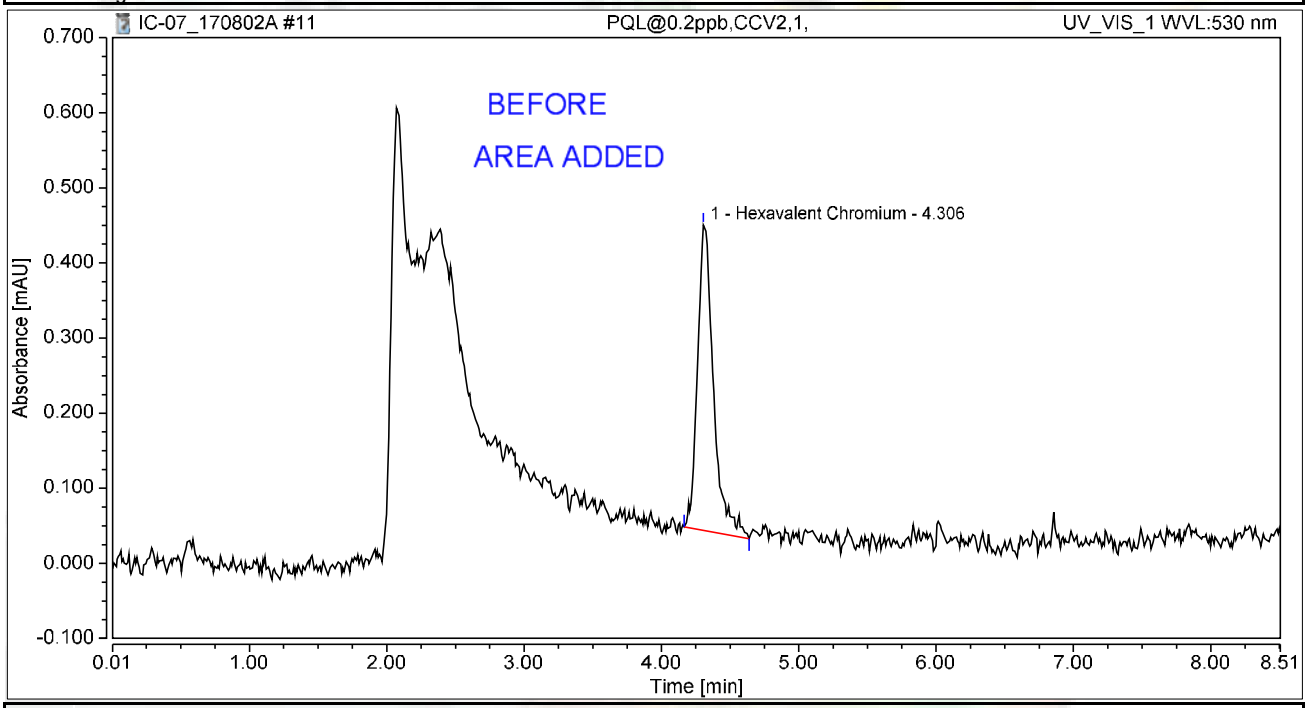
08/15/20/17

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.055	0.407	100.00	100.00	0.2076
Total:			**0.055**	**0.407**	**100.00**	**100.00**	

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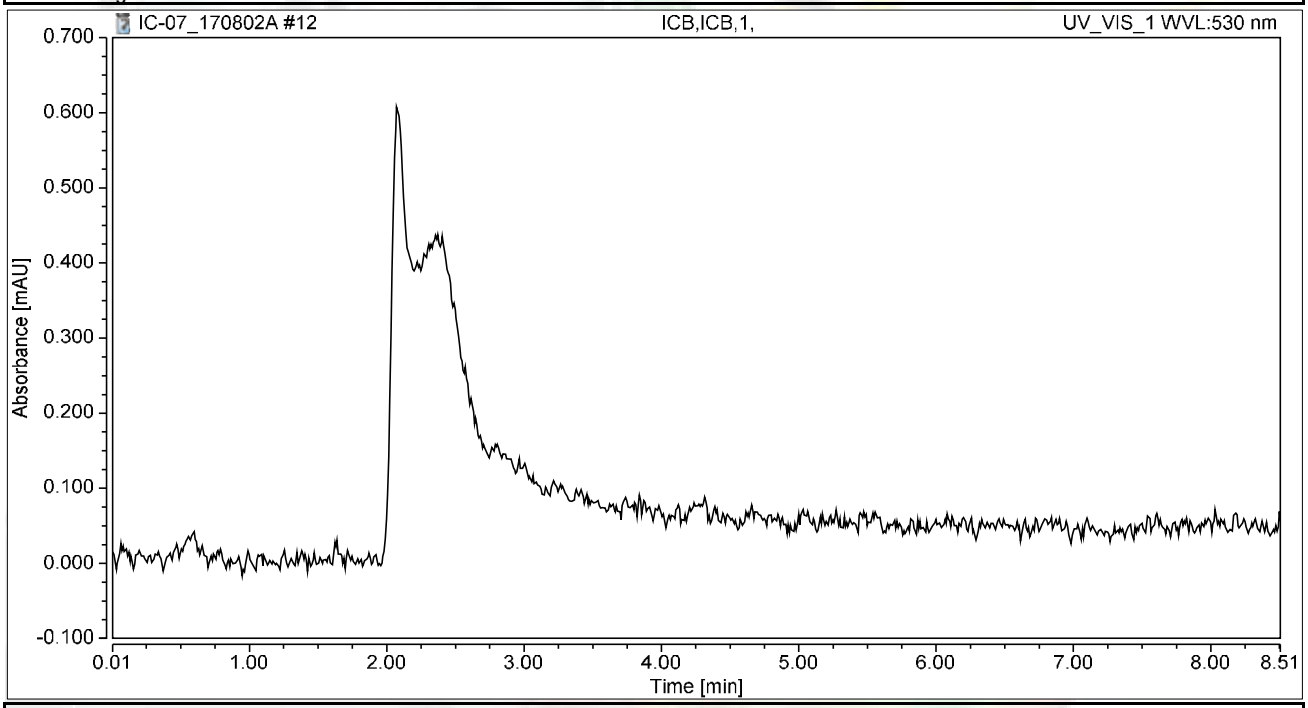
Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170803A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/03/17 10:08 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/03/17 10:19 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/03/17 10:28 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/03/17 10:38 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/03/17 10:47 AM	Reported
15	MB-R116845	MBLK	1	Hexavalent Chromium	08/03/17 10:57 AM	Reported
16	LCS-R116845	LCS	1	Hexavalent Chromium	08/03/17 11:06 AM	Reported
17	N025313-001A	SAMP	1	Hexavalent Chromium	08/03/17 11:16 AM	Reported
18	N025313-001AMS	MS	1	Hexavalent Chromium	08/03/17 11:25 AM	Reported
19	N025313-001AMSD	MSD	1	Hexavalent Chromium	08/03/17 11:35 AM	Reported
20	N025254-002A	SAMP	20	Hexavalent Chromium	08/03/17 11:44 AM	Reported
21	N025254-002ADUP	DUP	20	Hexavalent Chromium	08/03/17 11:54 AM	Reported
22	N025254-014A	SAMP	1	Hexavalent Chromium	08/03/17 12:03 PM	Reported
23	CCV-2	CCV1	1	Hexavalent Chromium	08/03/17 12:36 PM	Reported
24	CCB-2	CCB	1	Hexavalent Chromium	08/03/17 12:47 PM	Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_170803A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**03/Aug/17 13:27:20**
No. of Injections:	**27**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/03/2017 10:08	Finished	
11	BLANK	2	1000	Unknown		08/03/2017 10:19	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/03/2017 10:28	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/03/2017 10:38	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/03/2017 10:47	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/03/2017 10:57	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/03/2017 11:06	Finished	LCS, IWST-170622D
17	N025313-001A,SAMP	8	1000	Unknown		08/03/2017 11:16	Finished	SAMP,10mL
18	N025313-001AMS,MS	9	1000	Unknown		08/03/2017 11:25	Finished	MS (1ppb), IWST-170622D,10
19	N025313-001AMSD,M	10	1000	Unknown		08/03/2017 11:35	Finished	MSD (1ppb), IWST-170622D,1(
20	N025254-002A,SAMP	11	1000	Unknown		08/03/2017 11:44	Finished	SAMP,0.5> 10mL
21	N025254-002ADUP,D	12	1000	Unknown		08/03/2017 11:54	Finished	DUP,0.5> 10mL
22	N025254-014A,SAMP	13	1000	Unknown		08/03/2017 12:03	Finished	SAMP, 10mL
23	CCV-2,CCV1,1,	15	1000	Unknown		08/03/2017 12:36	Finished	CCV @10ppb, IWST-170622C
24	CCB-2,CCB,1,	16	1000	Unknown		08/03/2017 12:47	Finished	CCB R170724A
25	SHUTDOWN	17	1000	Unknown		08/03/2017 13:04	Finished	
26	Eluent: R170801A	18	1000	Unknown		n.a.	Finished	Eluent
27	PCR: R170801B	19	1000	Unknown		n.a.	Finished	Post-Column Reagent

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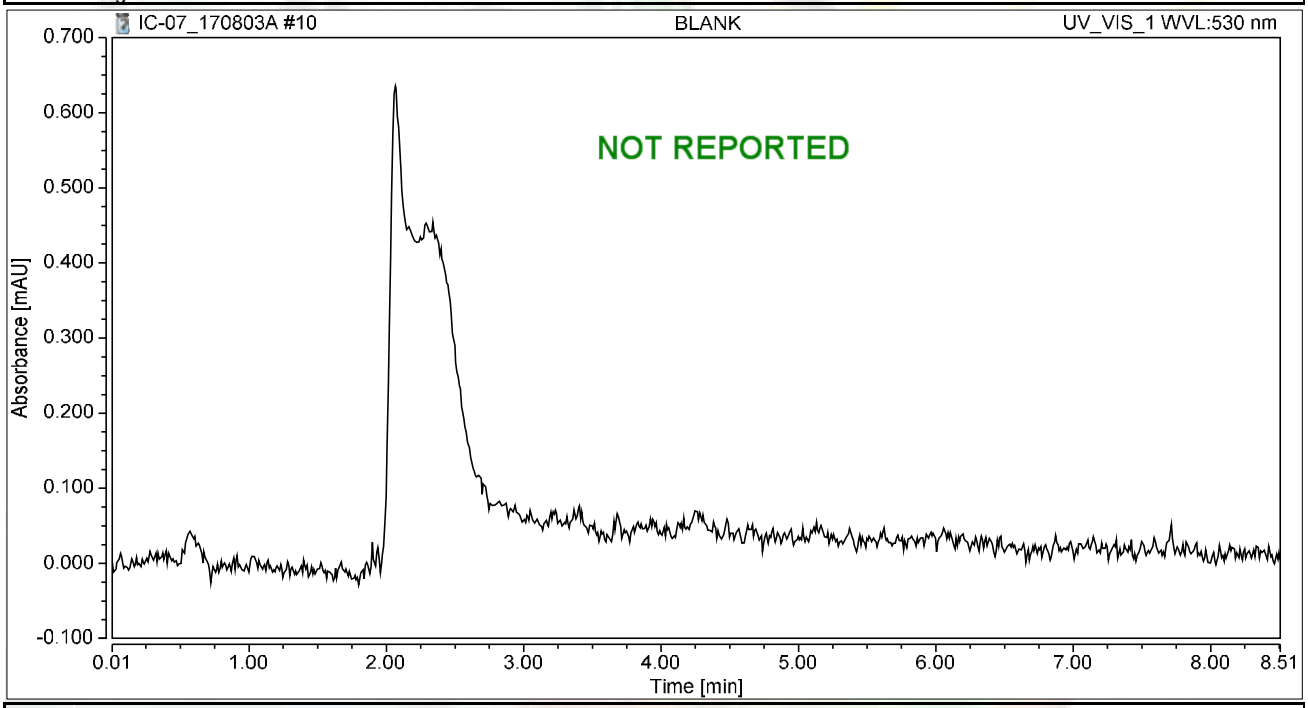
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 10:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

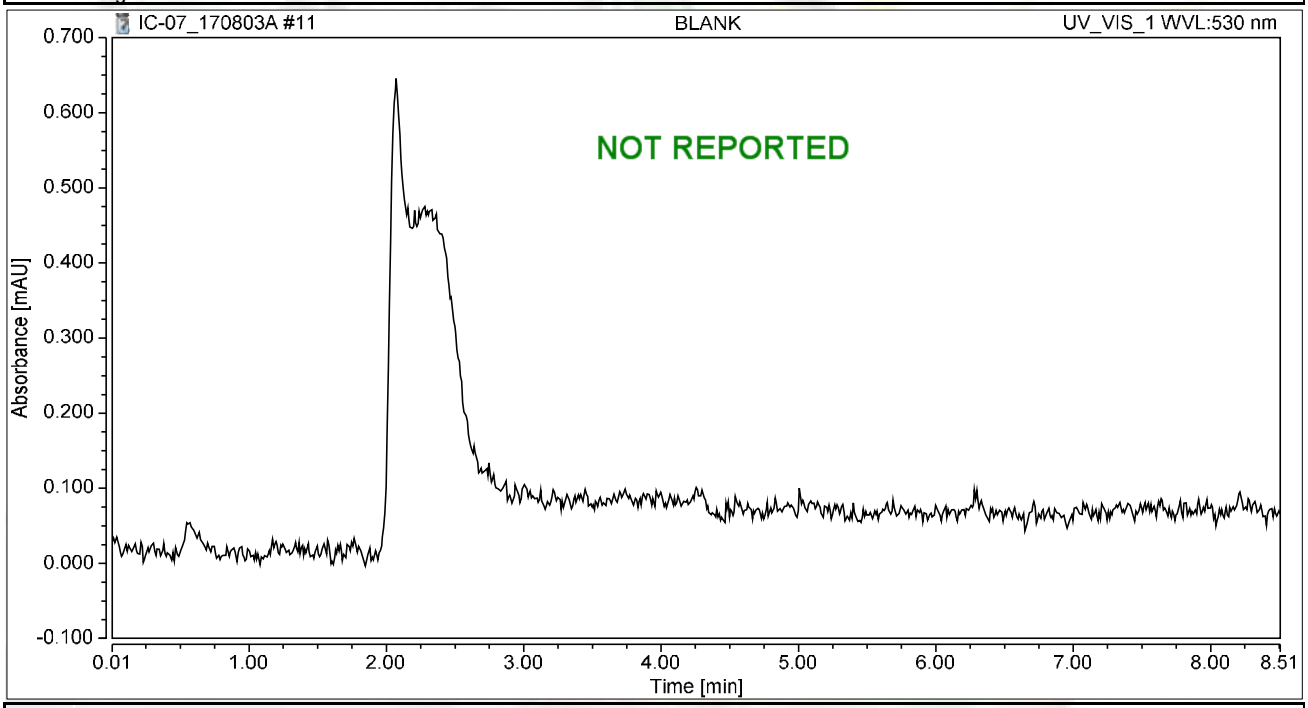
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 10:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

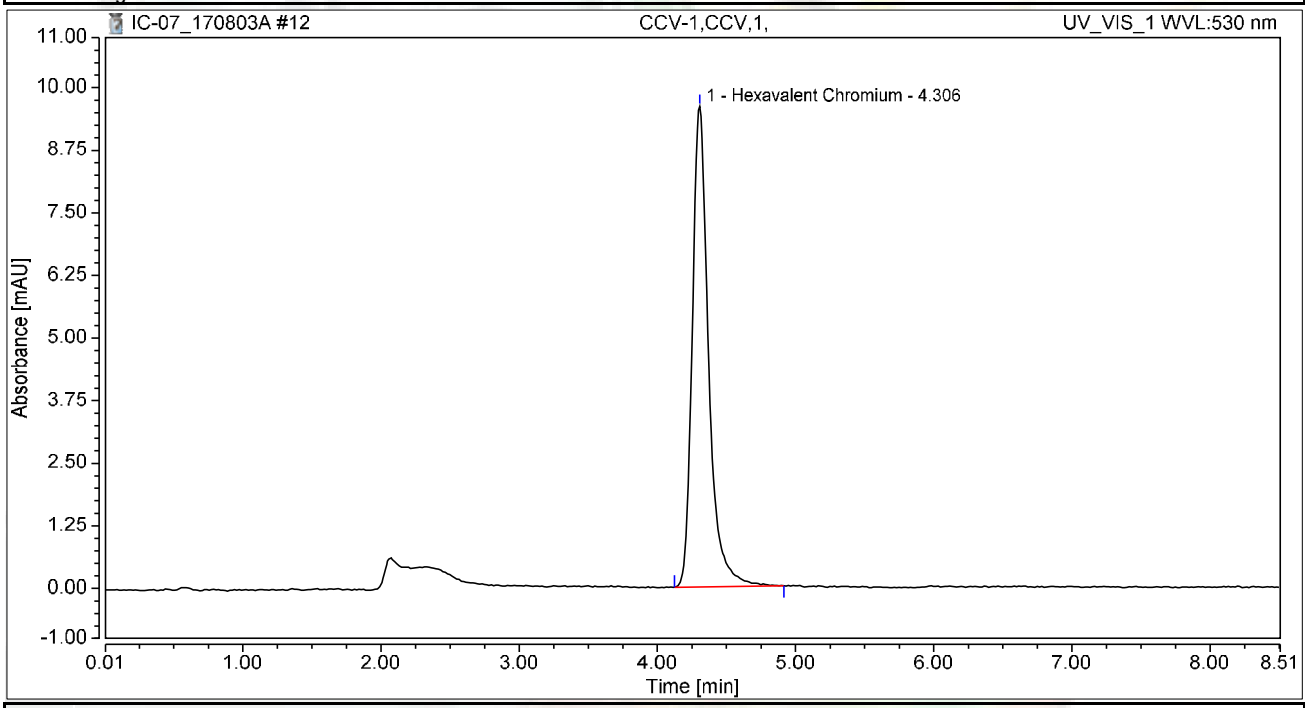
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

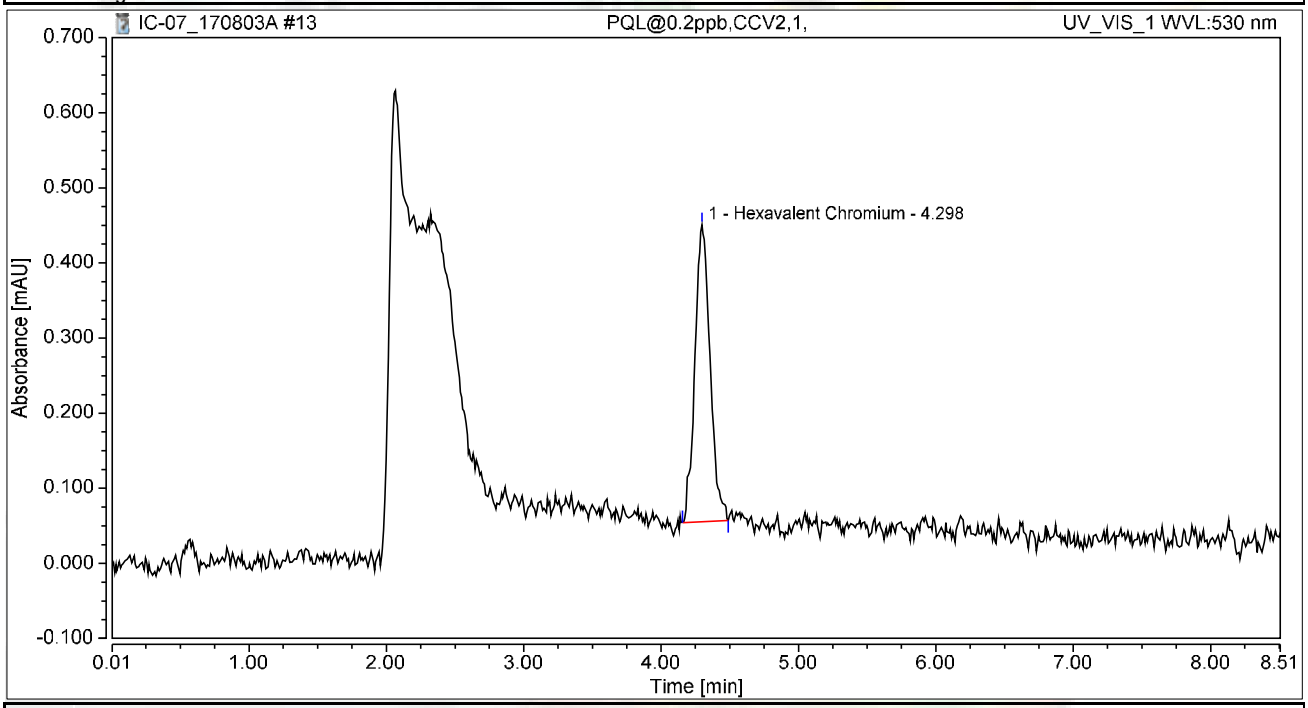
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	1.315	9.594	100.00	100.00	4.9922
Total:			**1.315**	**9.594**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

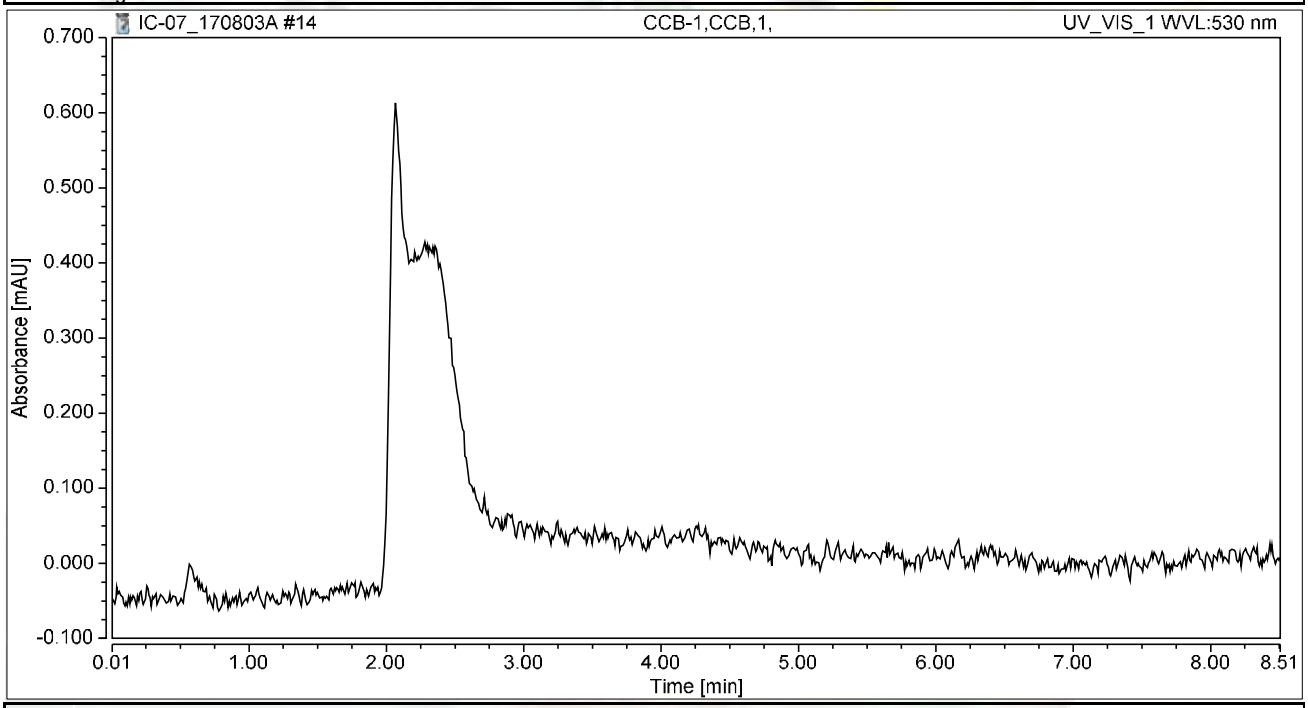
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	0.051	0.396	100.00	100.00	0.1919
Total:			**0.051**	**0.396**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

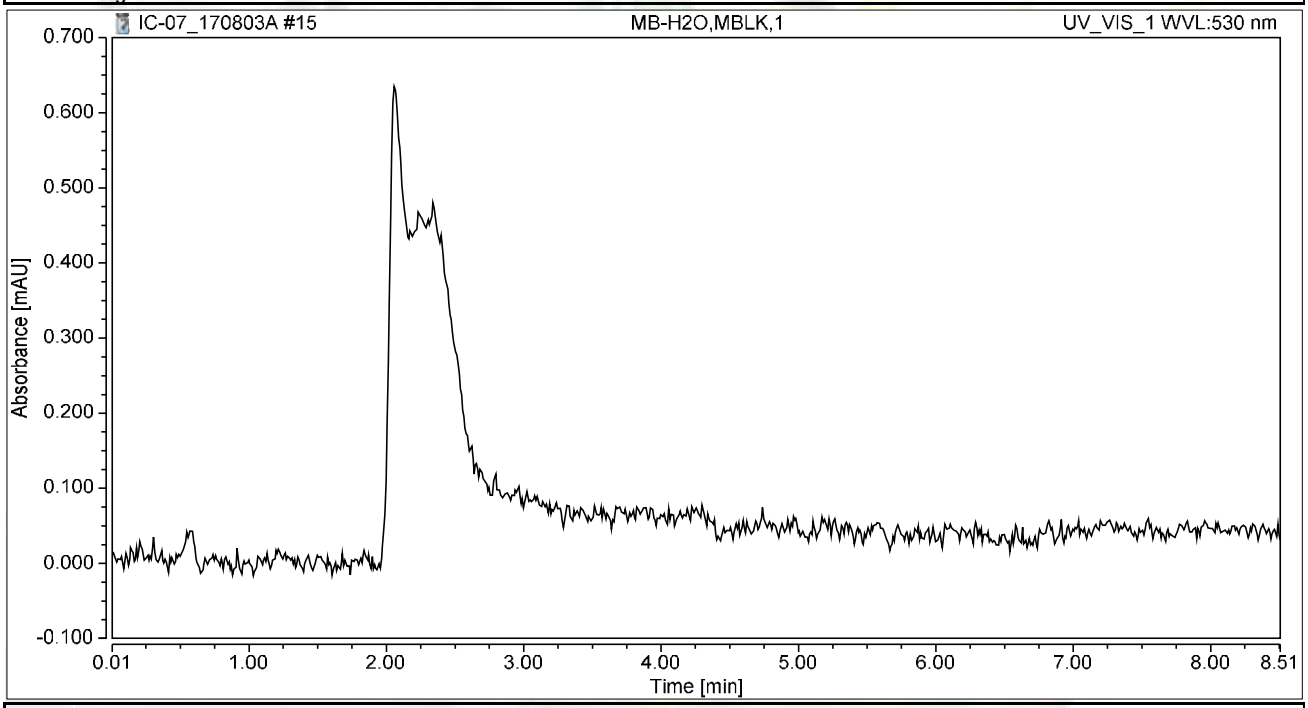
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

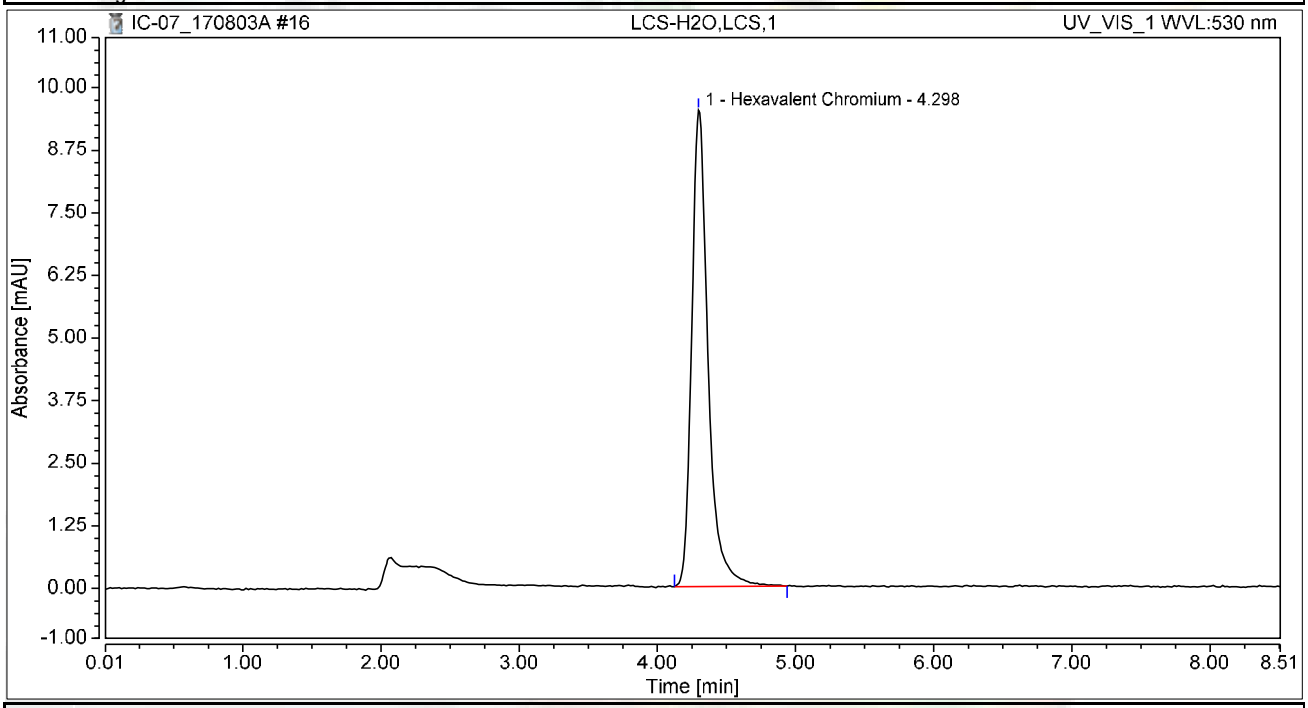
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

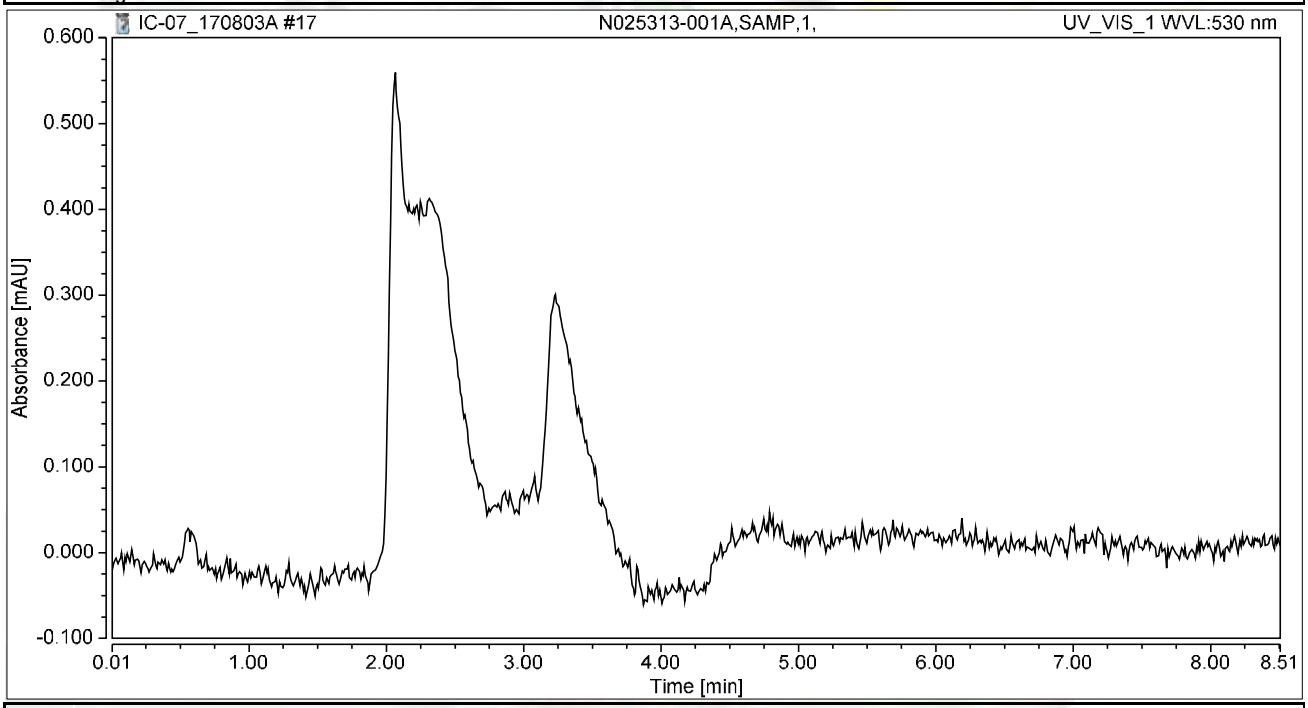
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	1.312	9.512	100.00	100.00	4.9796
Total:			**1.312**	**9.512**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025313-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

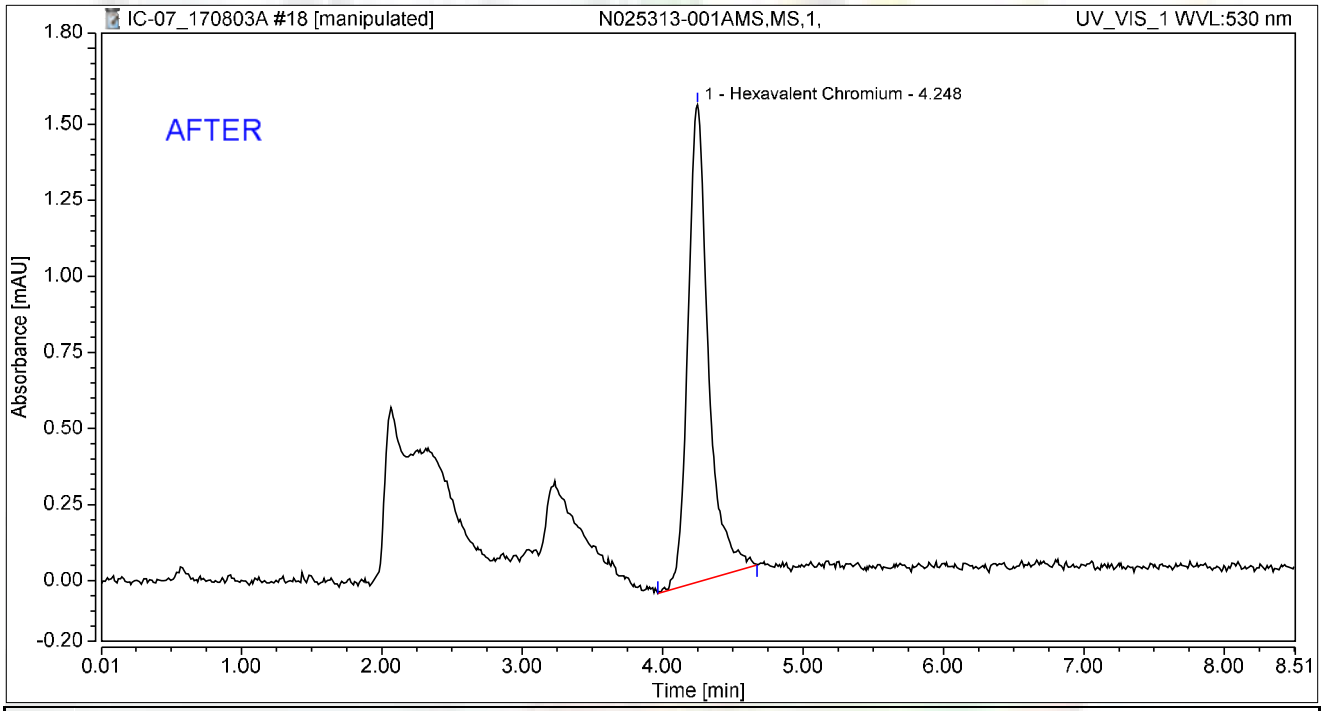
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025313-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.248	0.265	1.568	100.00	100.00	1.0060
Total:			**0.265**	**1.568**	**100.00**	**100.00**	

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Reviewed by:

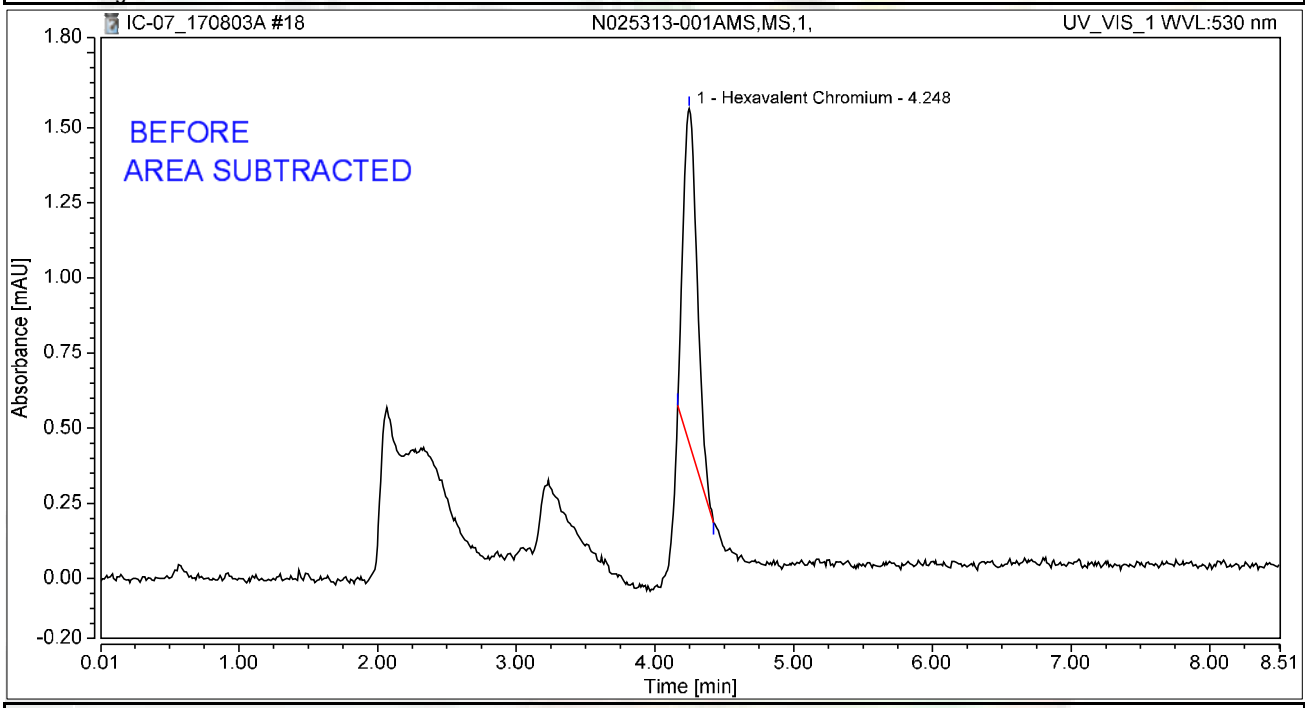
08/15/20/17

Chromatogram and Results

Injection Details

Injection Name:	**N025313-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.248	0.130	1.113	100.00	100.00	0.4949
Total:			**0.130**	**1.113**	**100.00**	**100.00**	

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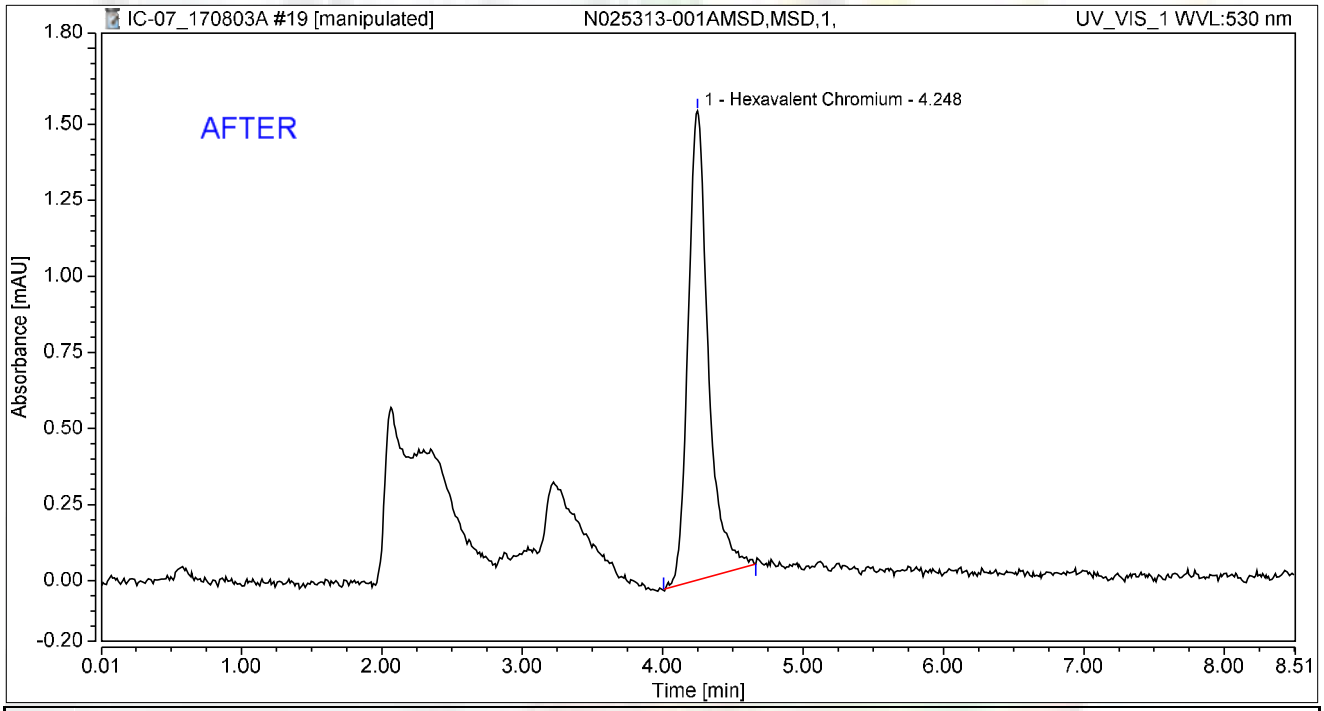
Chromatogram and Results

Injection Details

Injection Name:	**N025313-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.248	0.258	1.542	100.00	100.00	0.9786
Total:			**0.258**	**1.542**	**100.00**	**100.00**	

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Reviewed by:

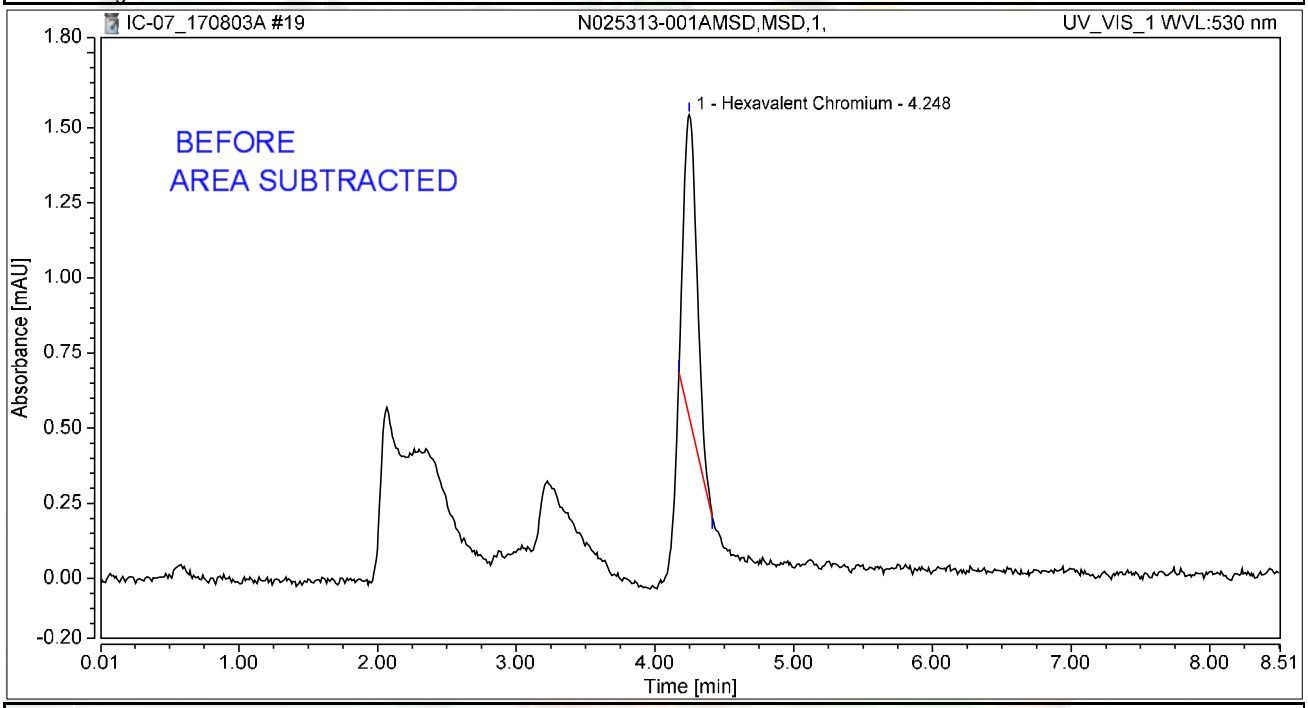
08/15/20/17

Chromatogram and Results

Injection Details

Injection Name:	**N025313-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.248	0.112	1.007	100.00	100.00	0.4267
Total:			**0.112**	**1.007**	**100.00**	**100.00**	

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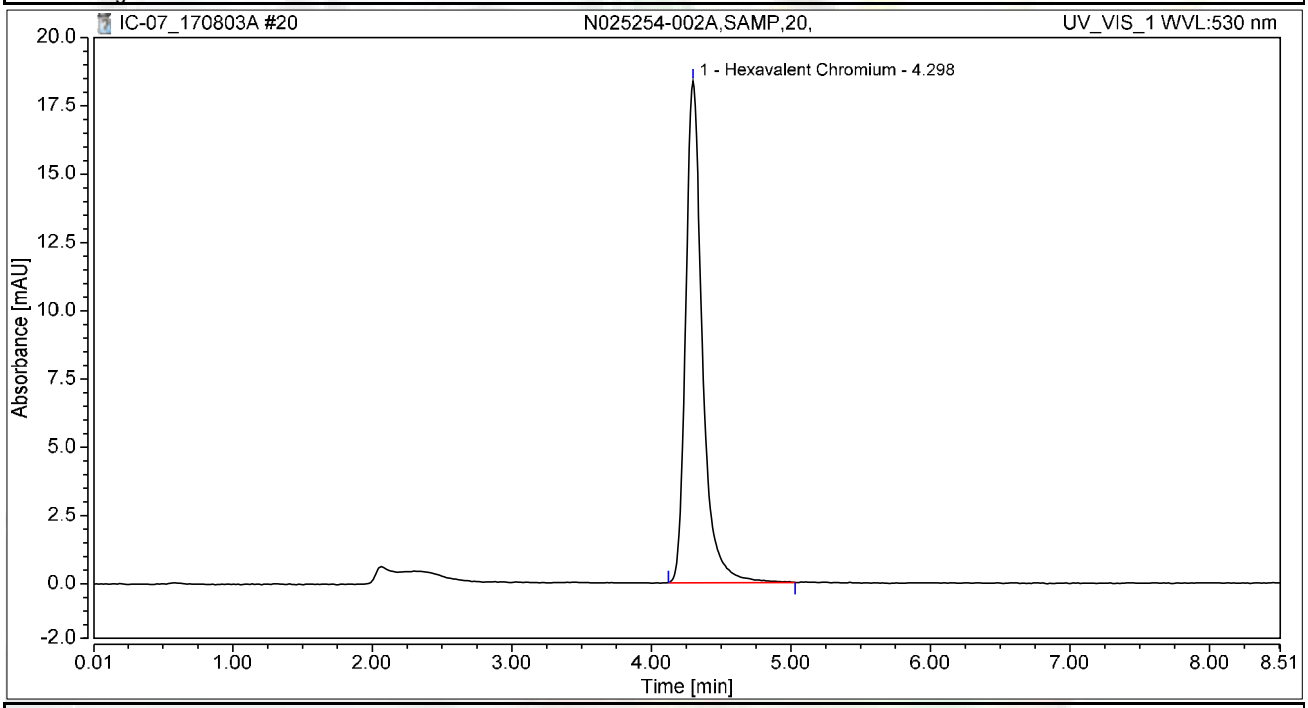
Chromatogram and Results

Injection Details

Injection Name:	**N025254-002A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

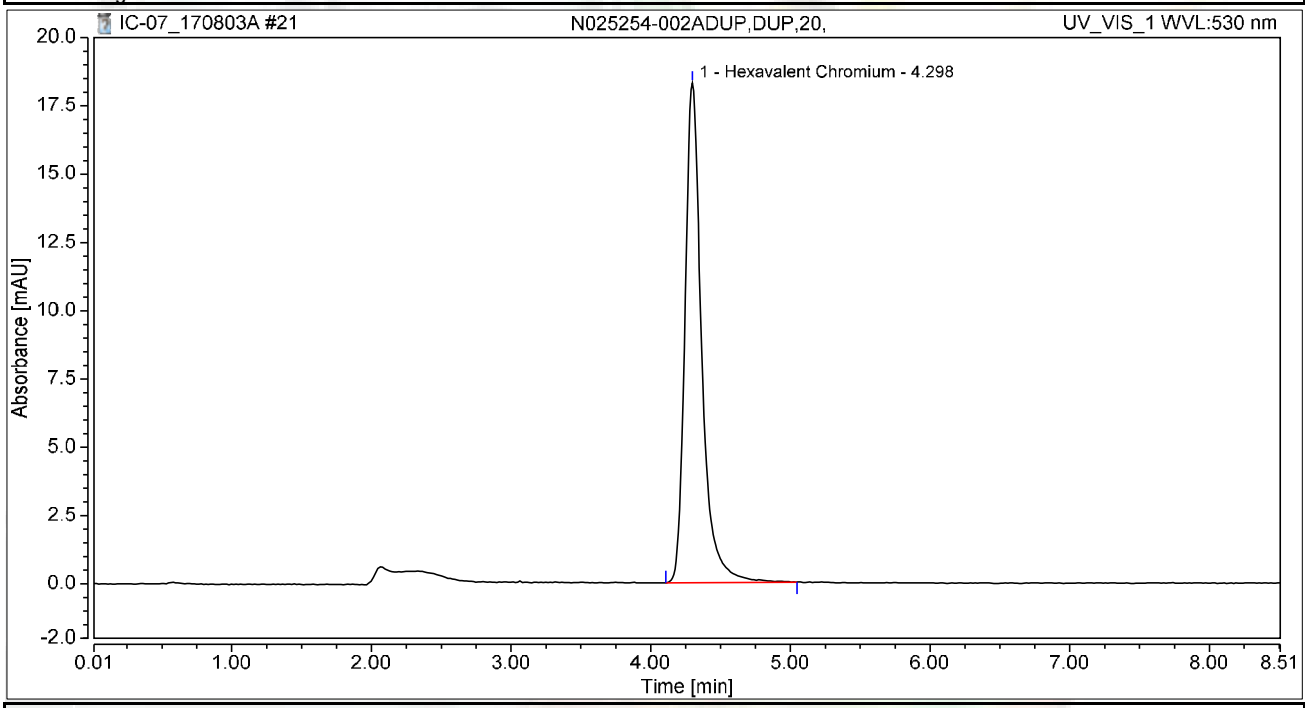
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	2.540	18.368	100.00	100.00	9.6430
Total:			**2.540**	**18.368**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025254-002ADUP,DUP,20,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

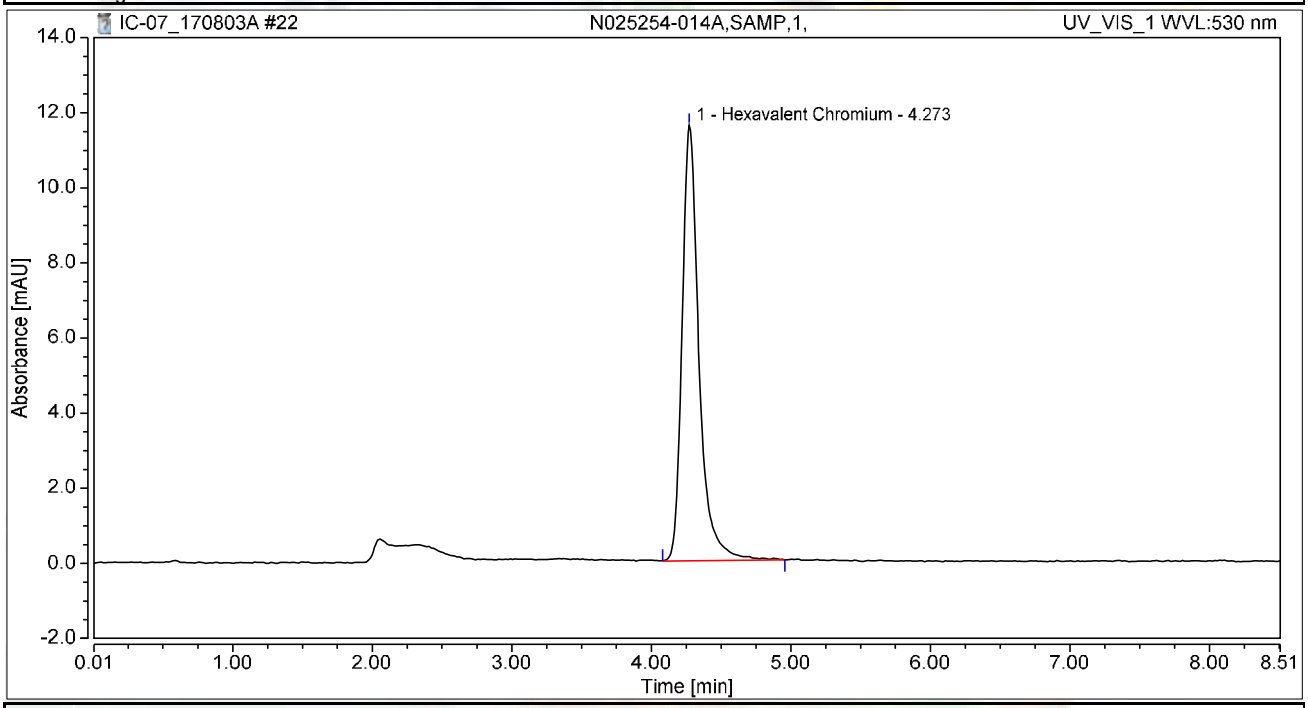
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	2.537	18.291	100.00	100.00	9.6299
Total:			**2.537**	**18.291**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025254-014A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

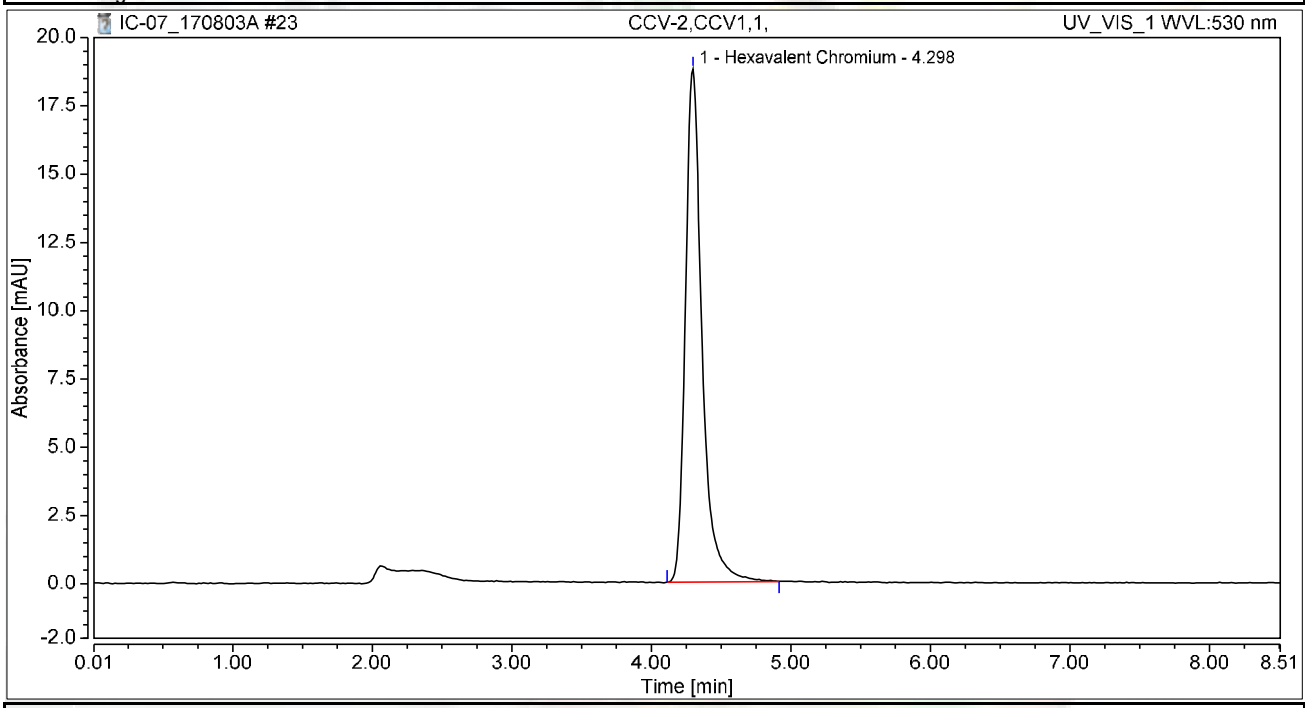
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.273	1.631	11.595	100.00	100.00	6.1934
Total:			**1.631**	**11.595**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

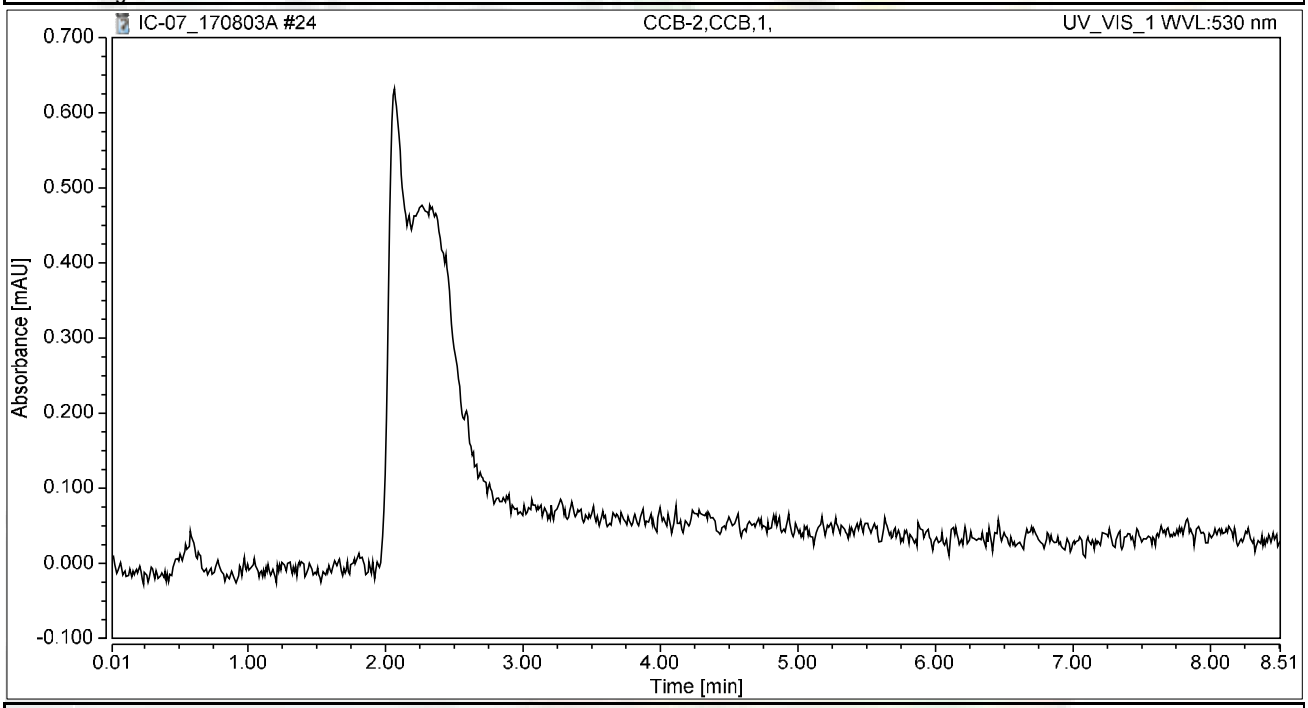
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	2.593	18.795	100.00	100.00	9.8457
Total:			**2.593**	**18.795**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Aug/17 12:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170804A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/04/17 9:27 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/04/17 9:37 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/04/17 9:47 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/04/17 9:56 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/04/17 10:06 AM	Reported
15	MB-R116882	MBLK	1	Hexavalent Chromium	08/04/17 10:15 AM	Reported
16	LCS-R116882	LCS	1	Hexavalent Chromium	08/04/17 10:25 AM	Reported
17	N025313-002A	SAMP	100	Hexavalent Chromium	08/04/17 10:34 AM	Reported
18	N025313-002ADUP	DUP	100	Hexavalent Chromium	08/04/17 10:44 AM	Reported
19	N025313-002AMS	MS	100	Hexavalent Chromium	08/04/17 10:53 AM	Reported
20	N025313-002AMSD	MSD	100	Hexavalent Chromium	08/04/17 11:03 AM	Reported
21	N025195-005A	SAMP	1	Hexavalent Chromium	08/04/17 11:12 AM	Not Reported
22	N025195-005AMS	MS	1	Hexavalent Chromium	08/04/17 11:22 AM	Not Reported
23	N025195-006A	SAMP	1	Hexavalent Chromium	08/04/17 11:31 AM	Not Reported
24	N025195-006AMS	MS	1	Hexavalent Chromium	08/04/17 11:40 AM	Not Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	08/04/17 11:50 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	08/04/17 11:59 AM	Reported
27	N025196-002A	SAMP	1	Hexavalent Chromium	08/04/17 12:09 PM	Not Reported
28	N025196-002AMS	MS	1	Hexavalent Chromium	08/04/17 12:18 PM	Not Reported
29	N025196-014A	SAMP	1	Hexavalent Chromium	08/04/17 12:28 PM	Not Reported
30	N025196-014AMS	MS	1	Hexavalent Chromium	08/04/17 12:37 PM	Not Reported
31	N025197-006A	SAMP	1	Hexavalent Chromium	08/04/17 12:47 PM	Not Reported
32	N025197-006AMS	MS	1	Hexavalent Chromium	08/04/17 12:56 PM	Not Reported
33	N025217-010A	SAMP	1	Hexavalent Chromium	08/04/17 1:06 PM	Not Reported
34	N025217-010AMS	MS	1	Hexavalent Chromium	08/04/17 1:15 PM	Not Reported
35	CCV-3	CCV	1	Hexavalent Chromium	08/04/17 1:25 PM	Reported
36	CCB-3	CCB	1	Hexavalent Chromium	08/04/17 1:34 PM	Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_170804A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**04/Aug/17 14:04:49**
No. of Injections:	**39**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/04/2017 09:27	Finished	
11	BLANK	2	1000	Unknown		08/04/2017 09:37	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/04/2017 09:47	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/04/2017 09:56	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/04/2017 10:06	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/04/2017 10:15	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/04/2017 10:25	Finished	LCS, IWST-170622D
17	N025313-002A,SAMP	8	1000	Unknown		08/04/2017 10:34	Finished	SAMP,0.1>10mL
18	N025313-002ADUP,D	9	1000	Unknown		08/04/2017 10:44	Finished	DUP,0.1>10mL
19	N025313-002AMS,MS	10	1000	Unknown		08/04/2017 10:53	Finished	MS (5ppb), IWST-170622D,0.1
20	N025313-002AMSD,M	11	1000	Unknown		08/04/2017 11:03	Finished	MSD (5ppb), IWST-170622D,0.
21	N025195-005A,SAMP	12	1000	Unknown		08/04/2017 11:12	Finished	SAMP,10mL
22	N025195-005AMS,MS	13	1000	Unknown		08/04/2017 11:22	Finished	MS (1ppb), IWST-170622D,10
23	N025195-006A,SAMP	14	1000	Unknown		08/04/2017 11:31	Finished	SAMP,10mL
24	N025195-006AMS,MS	15	1000	Unknown		08/04/2017 11:40	Finished	MS (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	16	1000	Unknown		08/04/2017 11:50	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		08/04/2017 11:59	Finished	CCB R170724A
27	N025196-002A,SAMP	18	1000	Unknown		08/04/2017 12:09	Finished	SAMP,10mL
28	N025196-002AMS,MS	19	1000	Unknown		08/04/2017 12:18	Finished	MS (1ppb), IWST-170622D,10
29	N025196-014A,SAMP	20	1000	Unknown		08/04/2017 12:28	Finished	SAMP,10mL
30	N025196-014AMS,MS	21	1000	Unknown		08/04/2017 12:37	Finished	MS (1ppb), IWST-170622D,10
31	N025197-006A,SAMP	22	1000	Unknown		08/04/2017 12:47	Finished	SAMP,10mL
32	N025197-006AMS,MS	23	1000	Unknown		08/04/2017 12:56	Finished	MS (1ppb), IWST-170622D,10
33	N025217-010A,SAMP	24	1000	Unknown		08/04/2017 13:06	Finished	SAMP,10mL
34	N025217-010AMS,MS	25	1000	Unknown		08/04/2017 13:15	Finished	MS (1ppb), IWST-170622D,10
35	CCV-3,CCV,1,	26	1000	Unknown		08/04/2017 13:25	Finished	CCV @5ppb, IWST-170622C
36	CCB-3,CCB,1,	27	1000	Unknown		08/04/2017 13:34	Finished	CCB R170724A
37	SHUTDOWN	28	1000	Unknown		08/04/2017 13:43	Finished	
38	Eluent: R170801A	29	1000	Unknown		n.a.	Finished	Eluent
39	PCR: R170801B	30	1000	Unknown		n.a.	Finished	Post-Column Reagent

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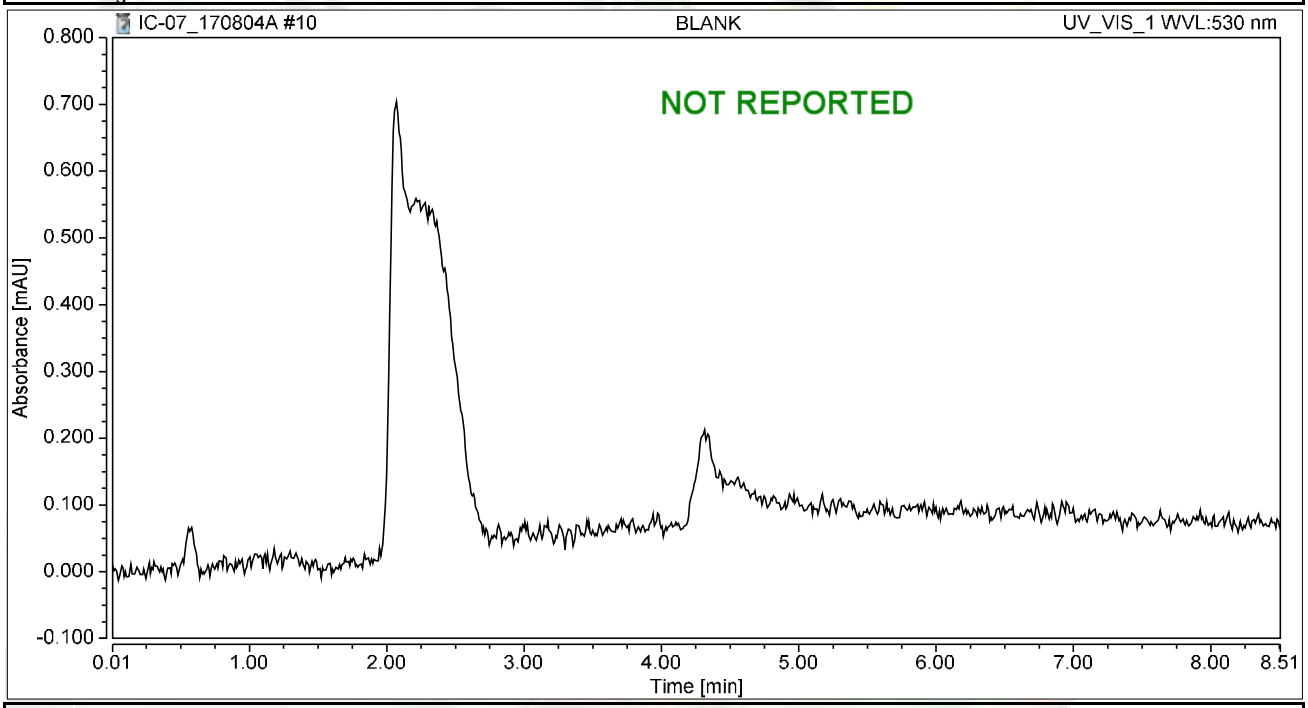
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

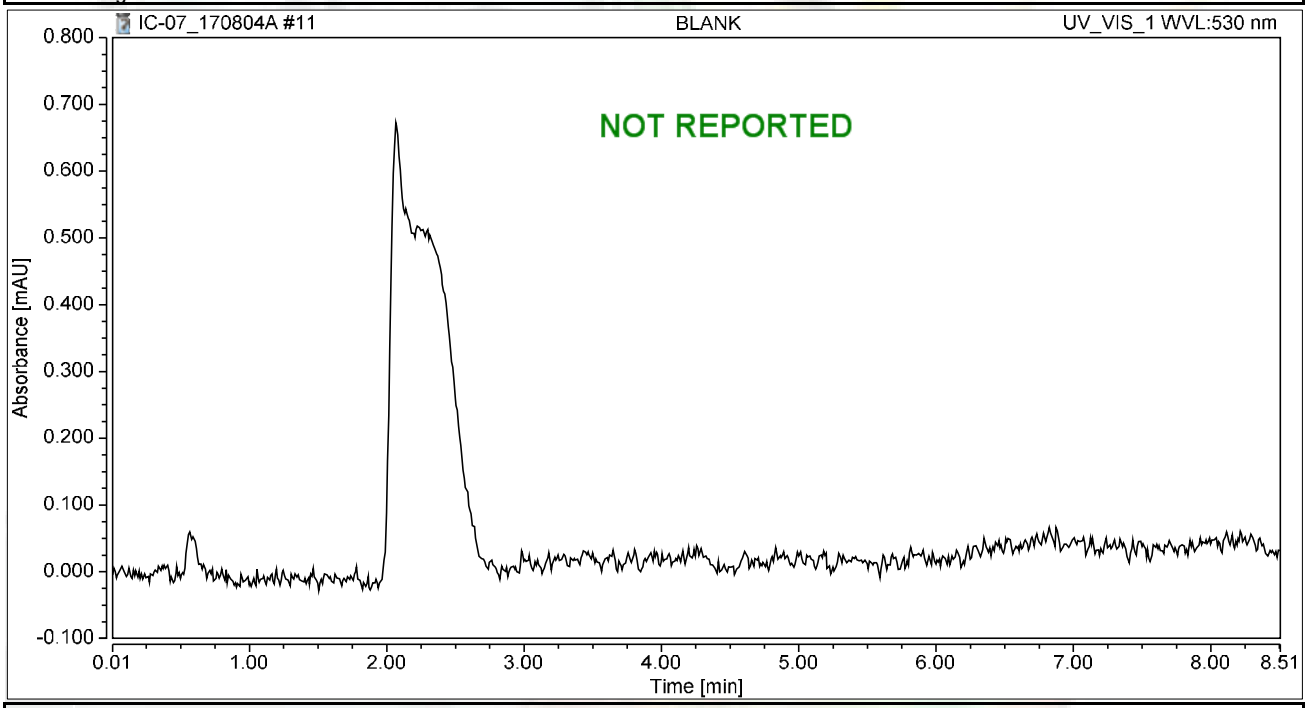
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 09:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

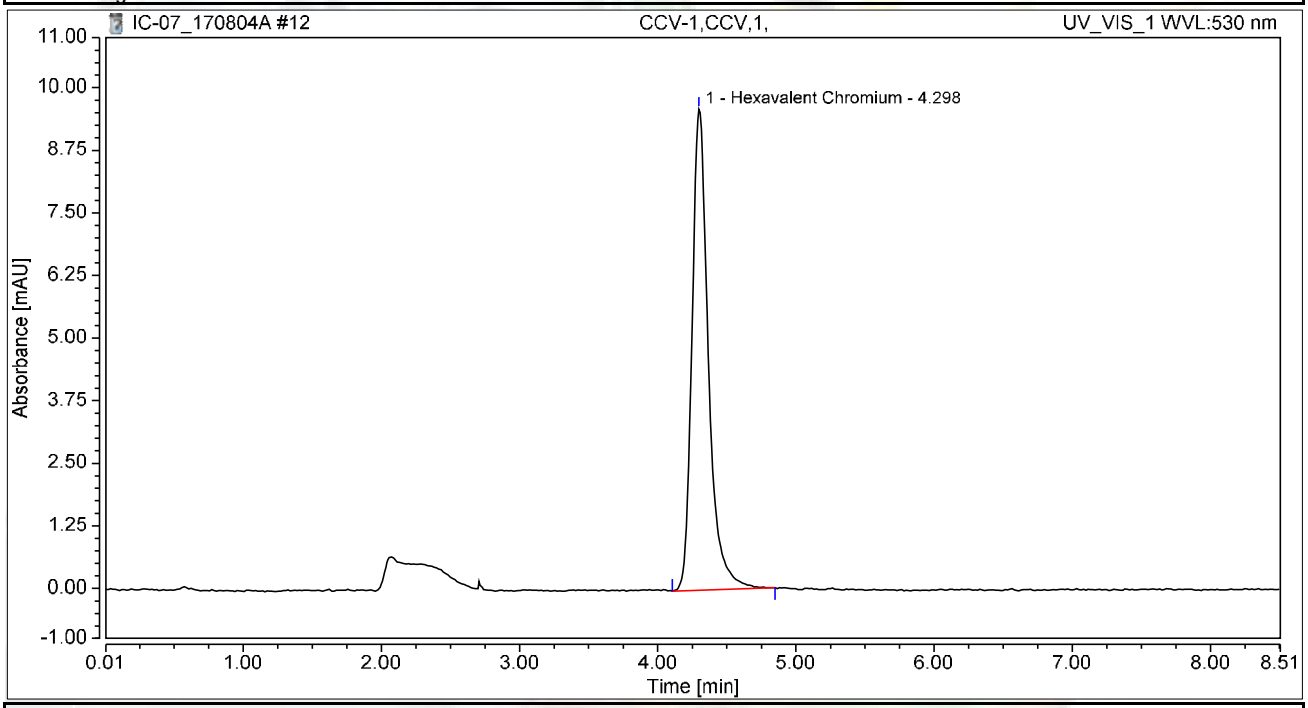
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

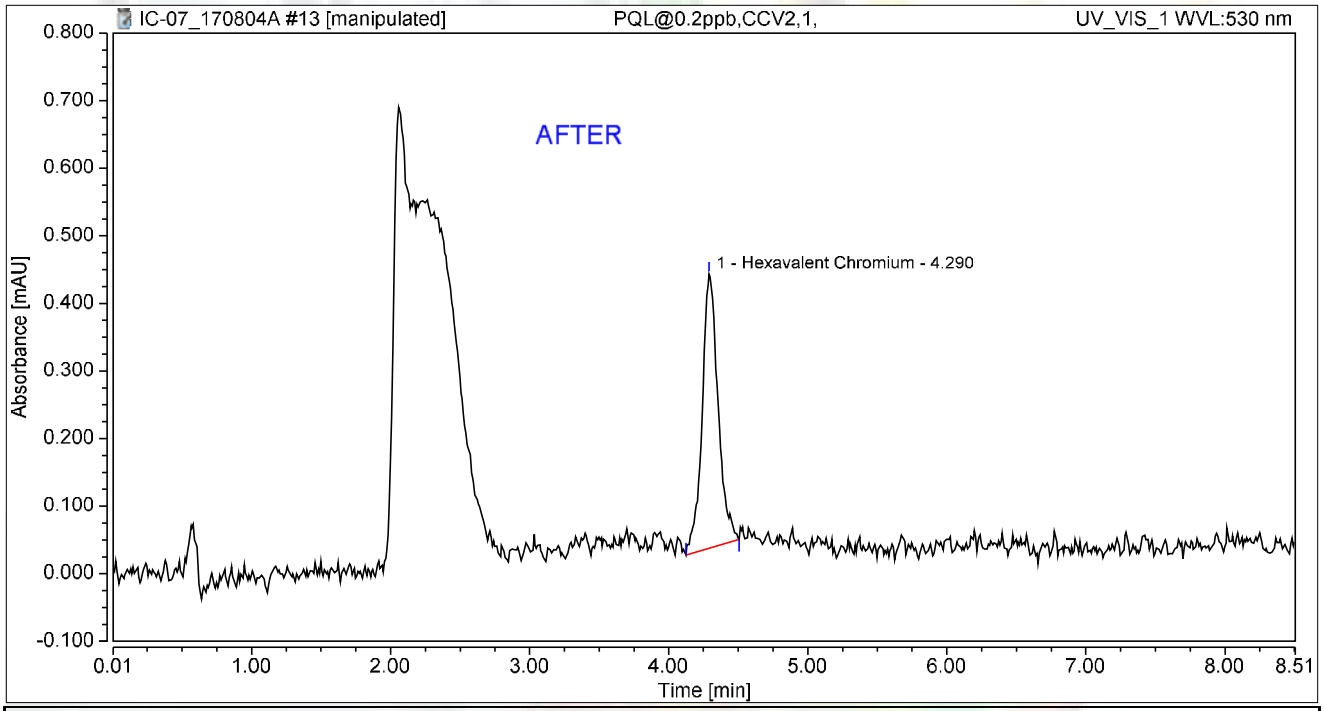
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	1.322	9.607	100.00	100.00	5.0194
Total:			**1.322**	**9.607**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	0.054	0.405	100.00	100.00	0.2051
Total:			**0.054**	**0.405**	**100.00**	**100.00**	

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Reviewed by:

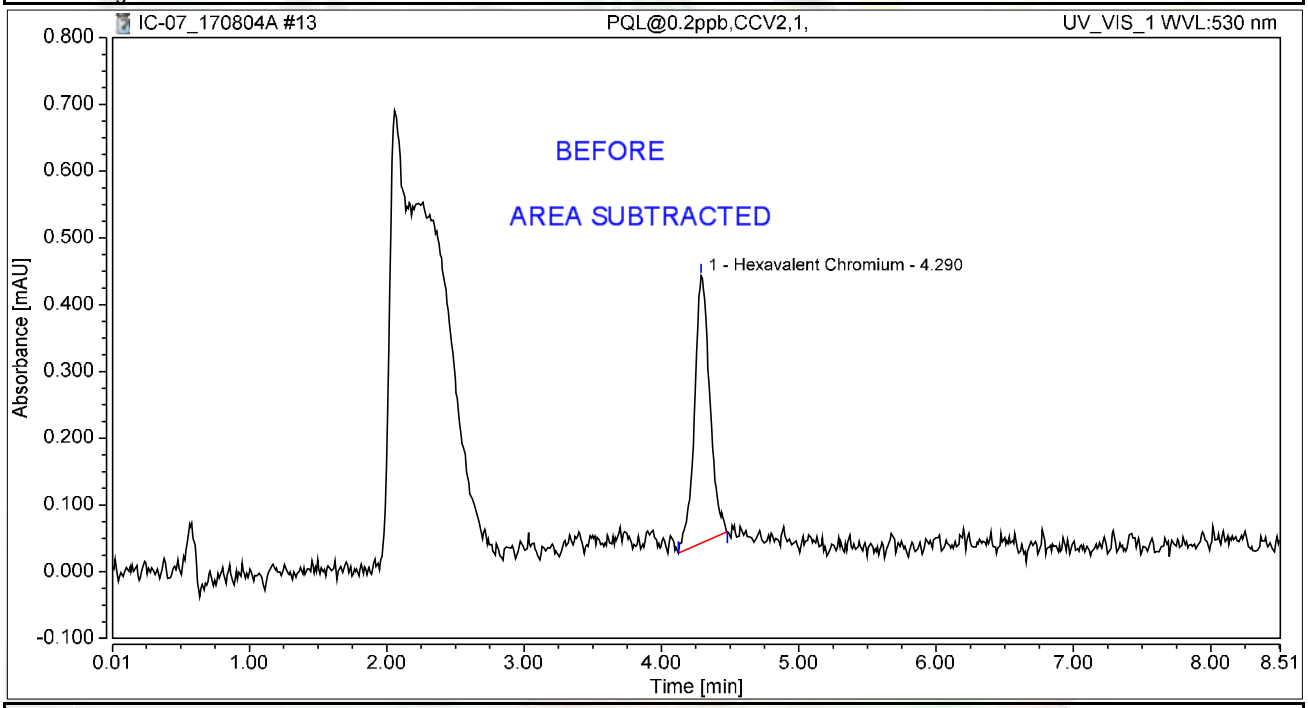
08/16/20/17

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	0.052	0.400	100.00	100.00	0.1970
Total:			**0.052**	**0.400**	**100.00**	**100.00**	

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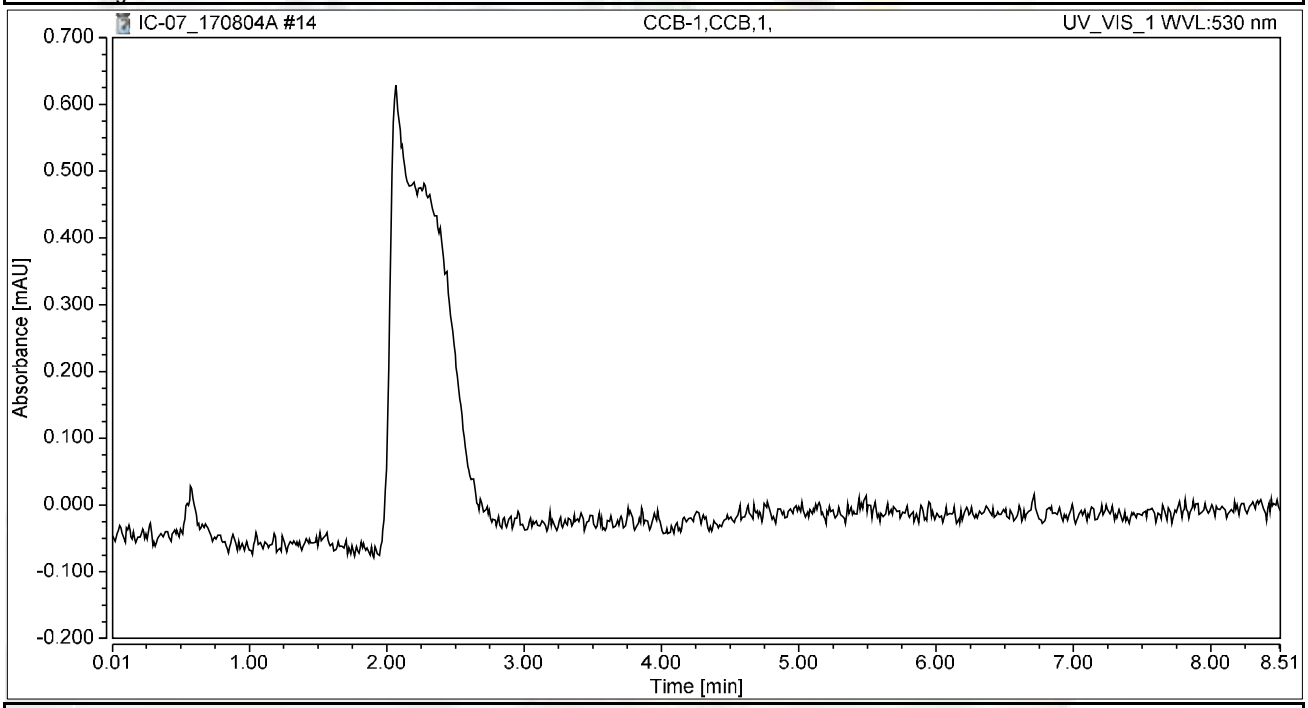
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

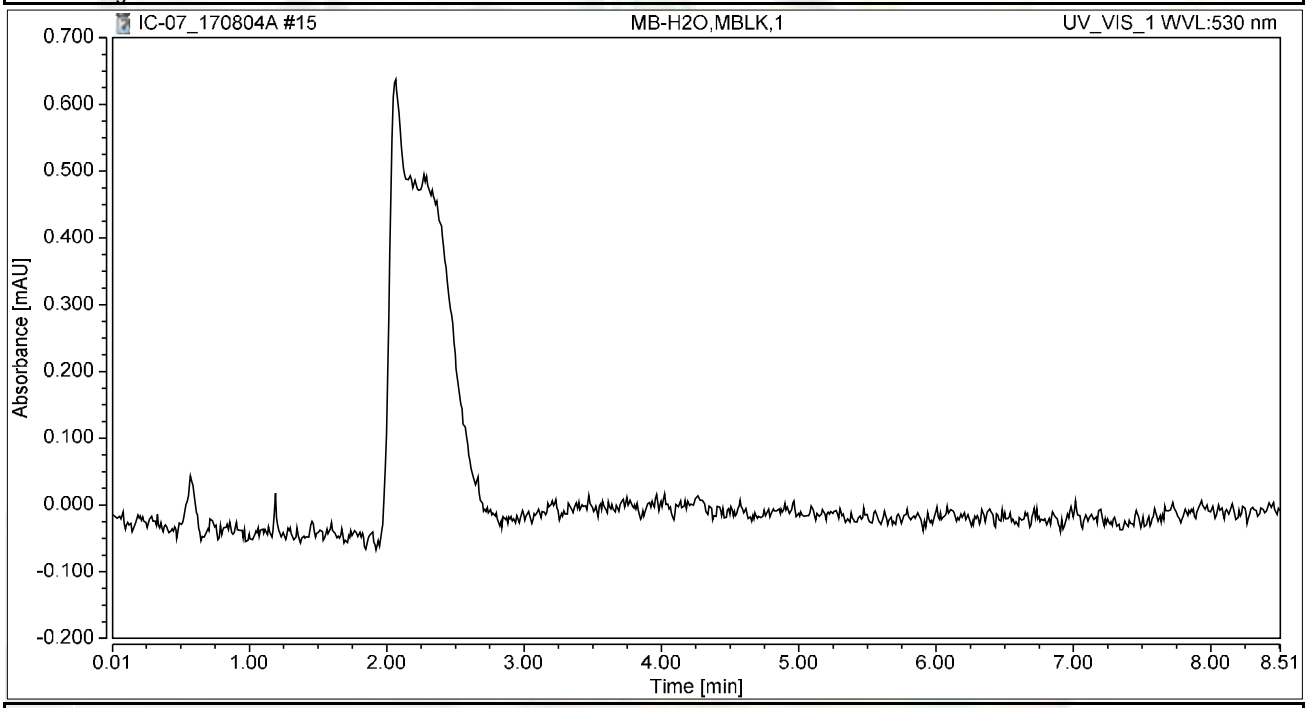
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 10:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

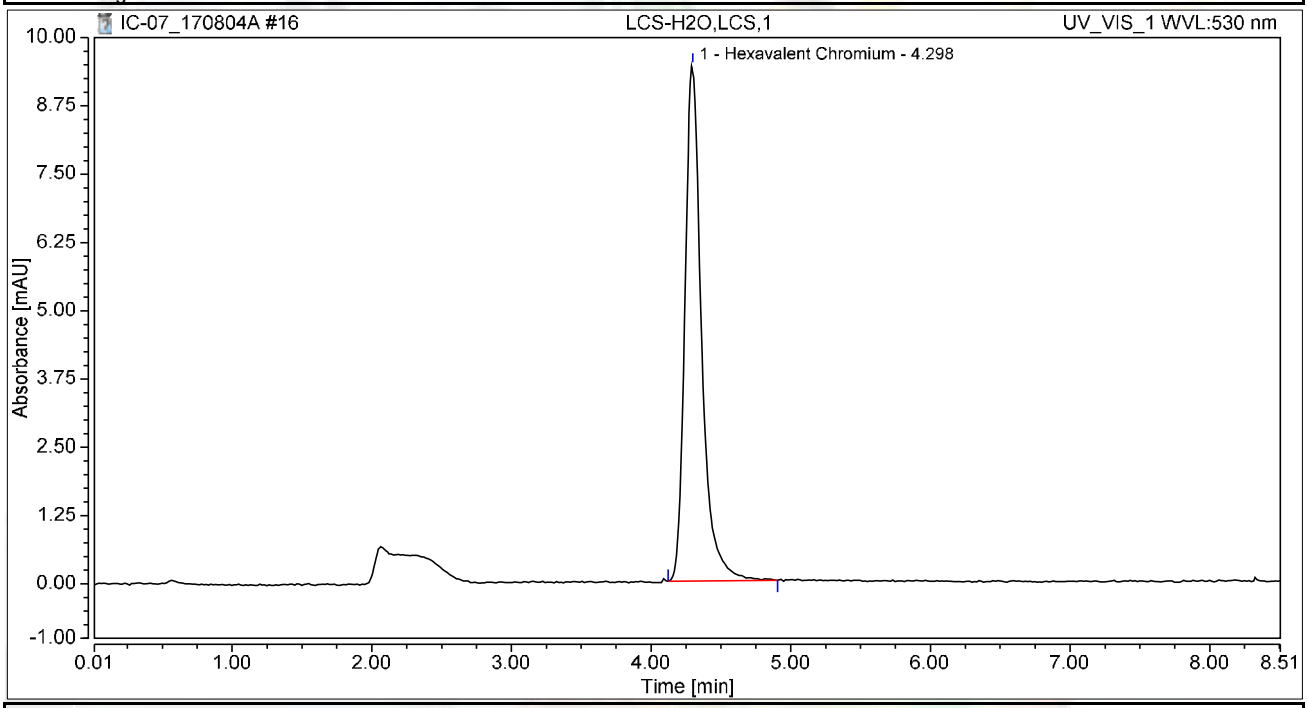
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 10:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

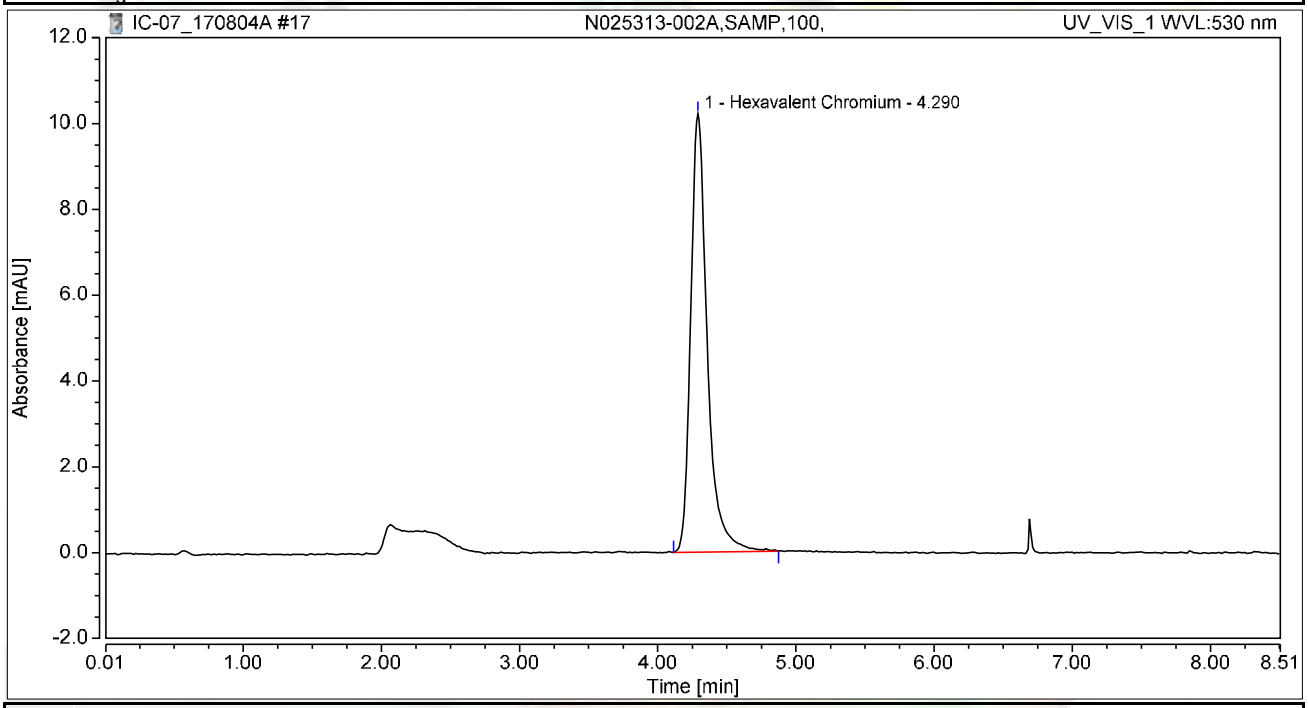
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.298	1.308	9.443	100.00	100.00	4.9646
Total:			**1.308**	**9.443**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025313-002A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 10:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

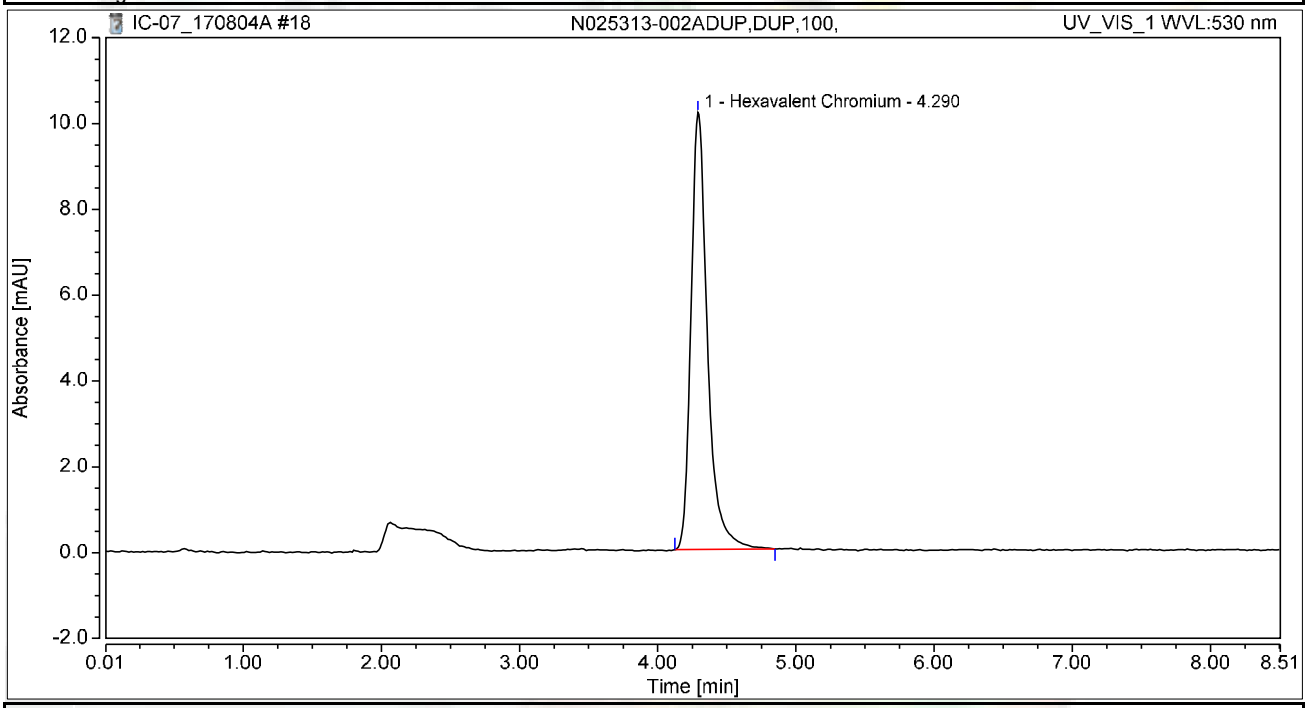
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	1.422	10.218	100.00	100.00	5.3989
Total:			**1.422**	**10.218**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025313-002ADUP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 10:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

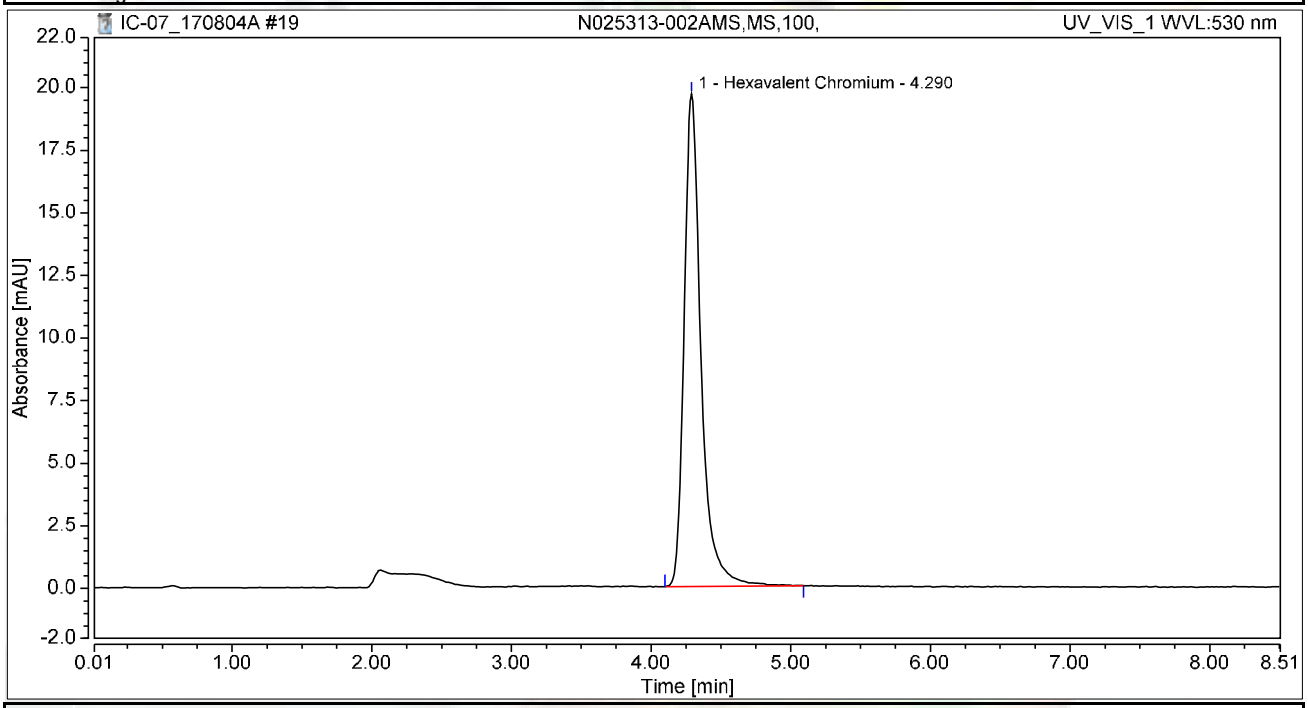
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	1.410	10.179	100.00	100.00	5.3511
Total:			**1.410**	**10.179**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025313-002AMS,MS,100,**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 10:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

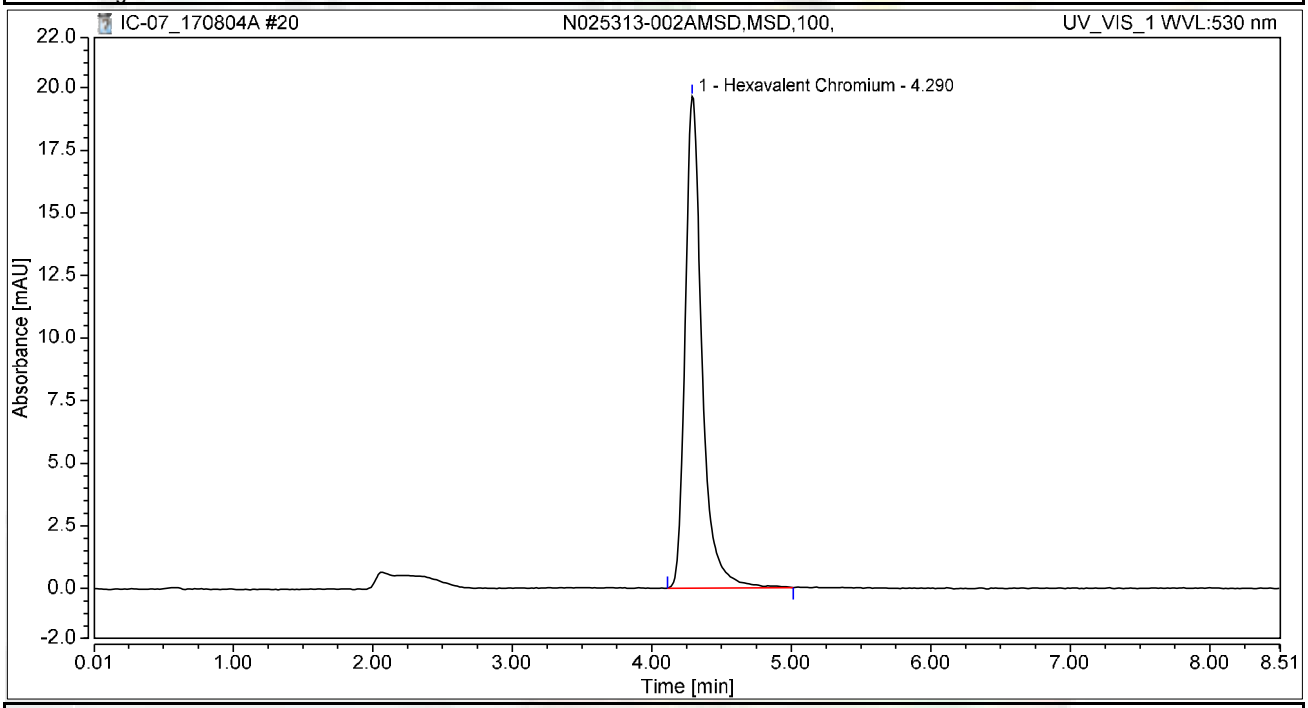
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	2.754	19.671	100.00	100.00	10.4553
Total:			**2.754**	**19.671**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025313-002AMSD,MSD,100,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

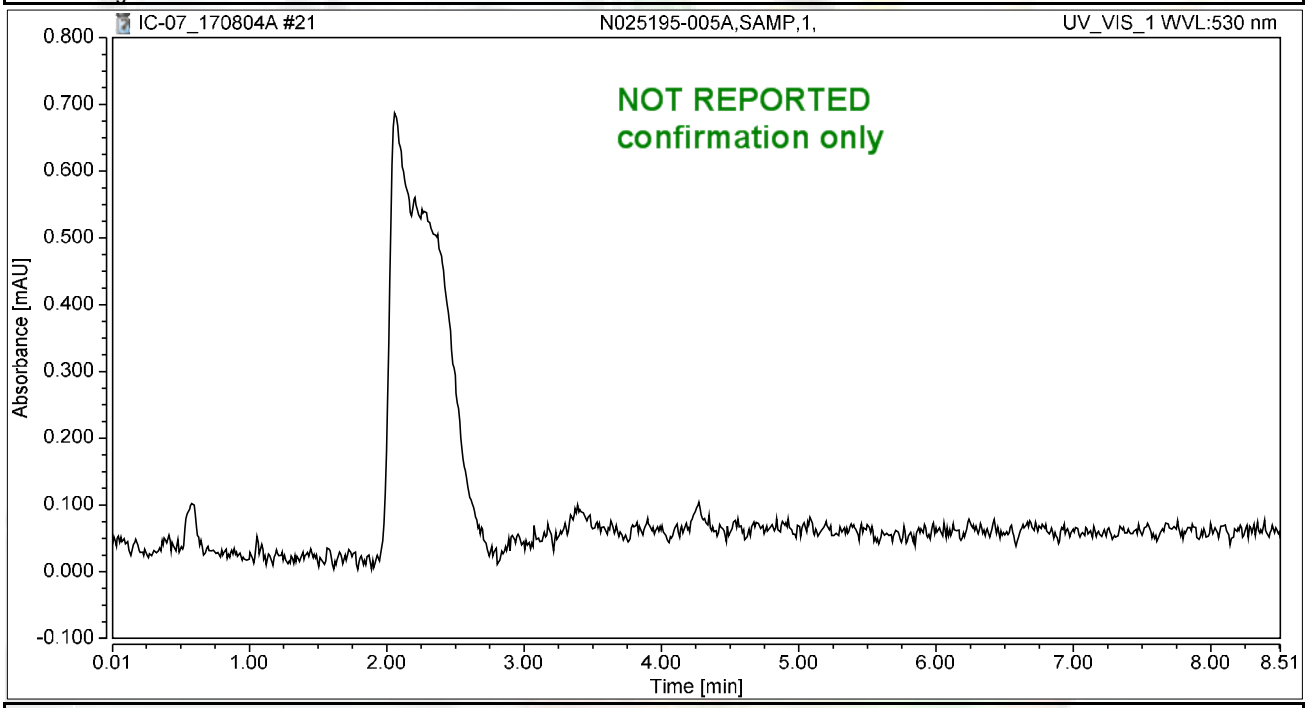
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	2.745	19.634	100.00	100.00	10.4212
Total:			**2.745**	**19.634**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025195-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

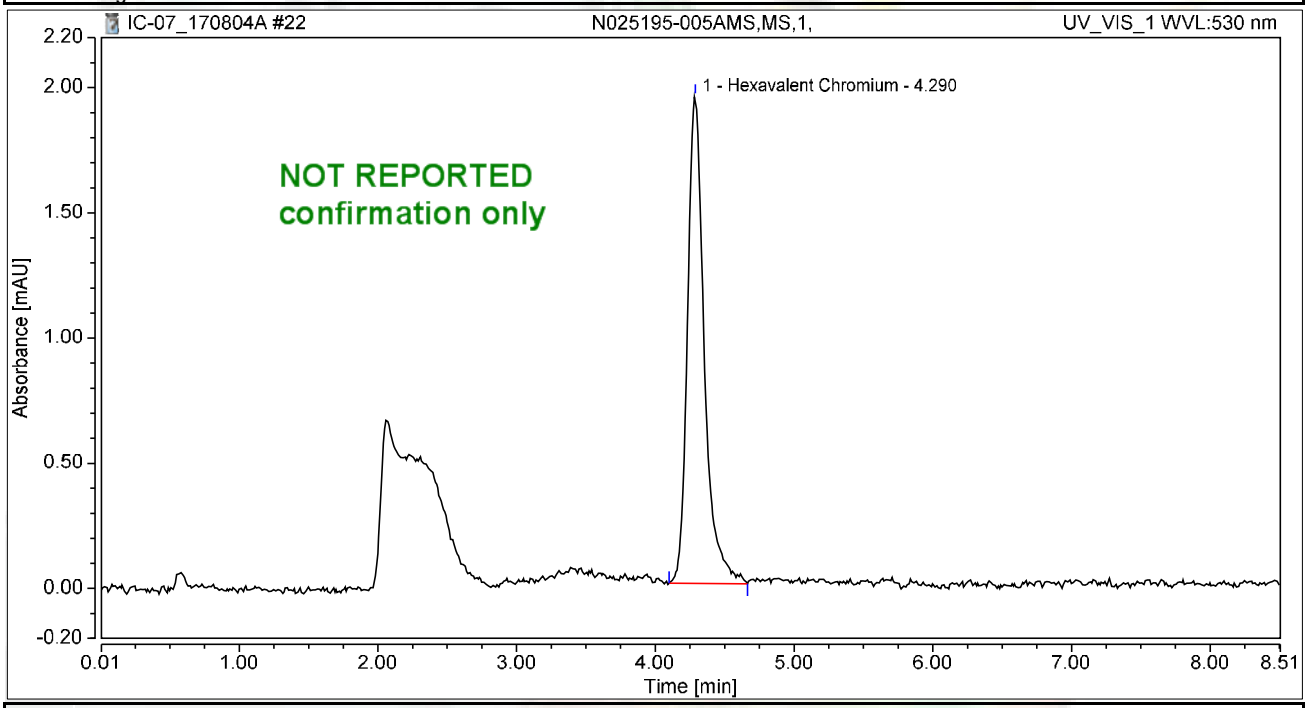
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025195-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

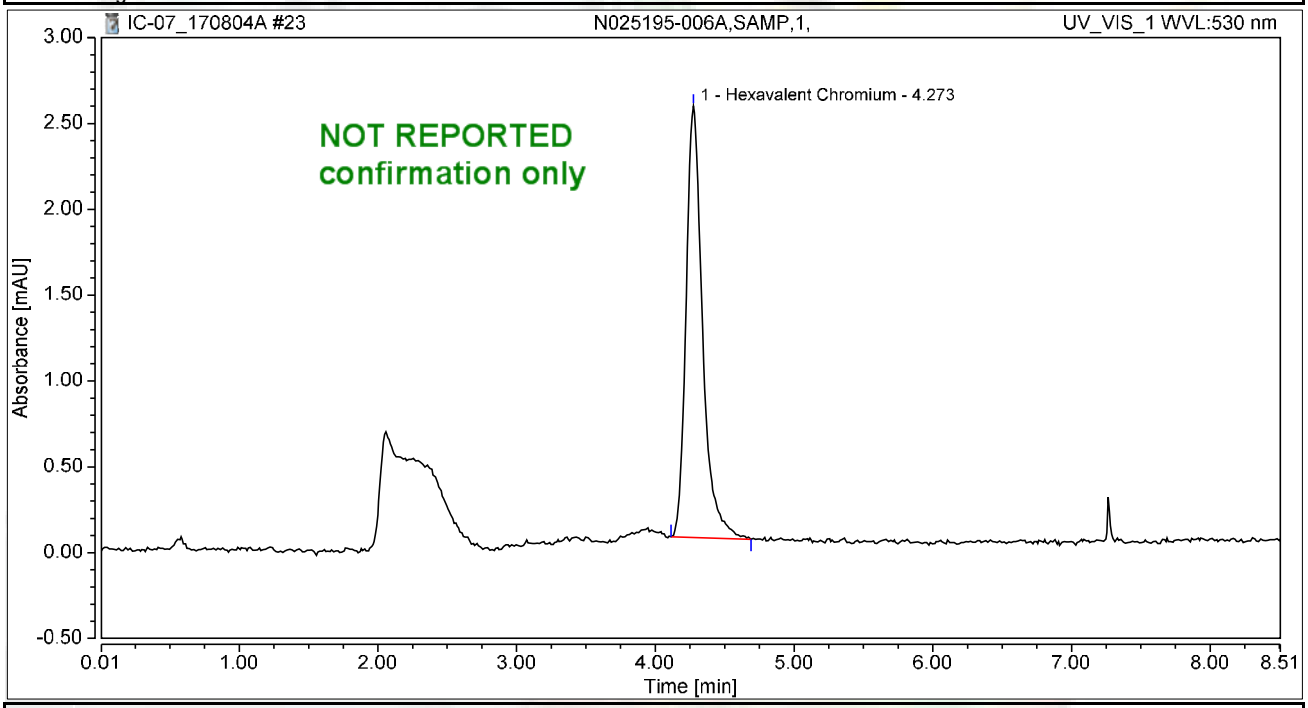
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	0.274	1.946	100.00	100.00	1.0386
Total:			**0.274**	**1.946**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025195-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

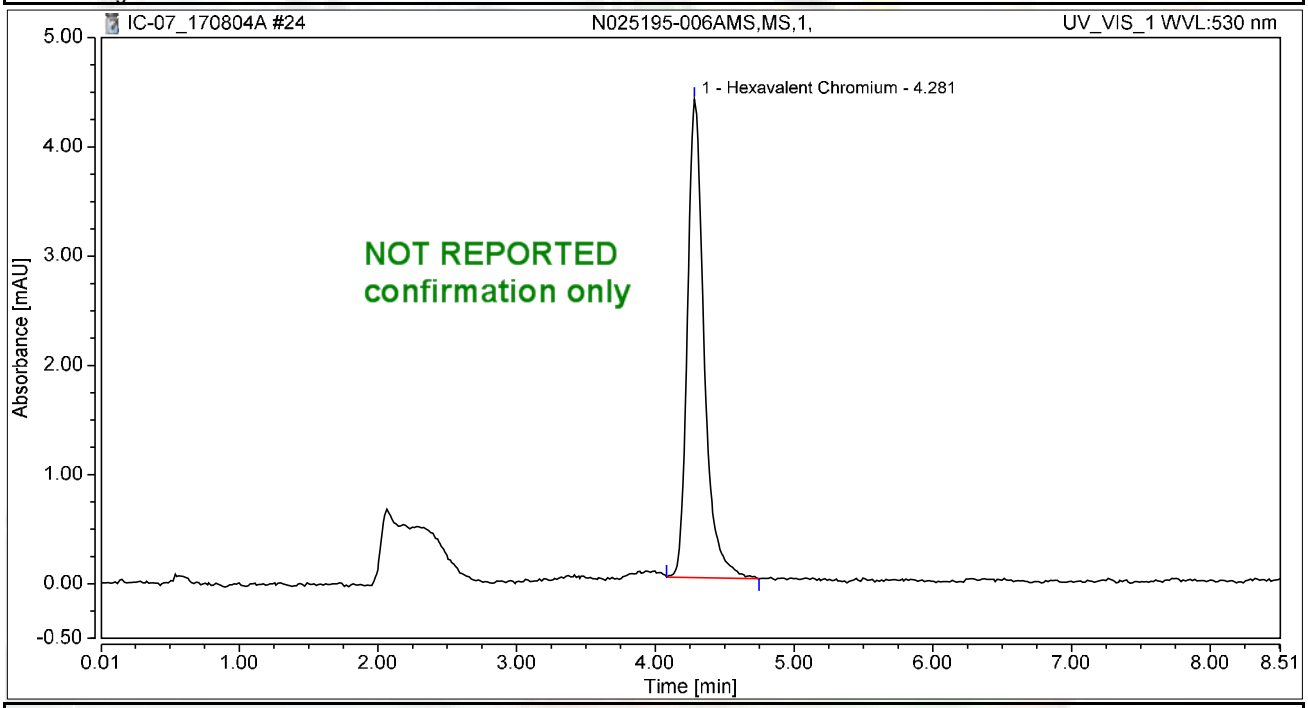
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.273	0.346	2.512	100.00	100.00	1.3135
Total:			**0.346**	**2.512**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025195-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

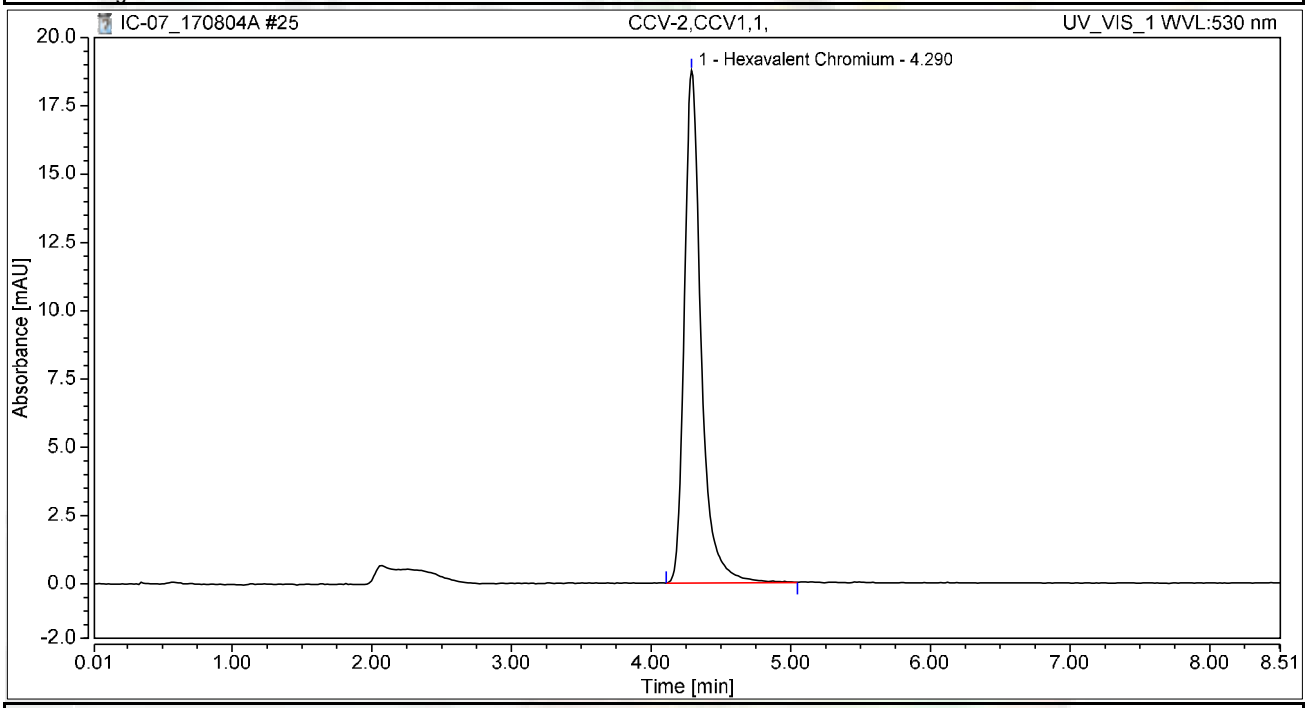
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	0.612	4.378	100.00	100.00	2.3231
Total:			**0.612**	**4.378**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

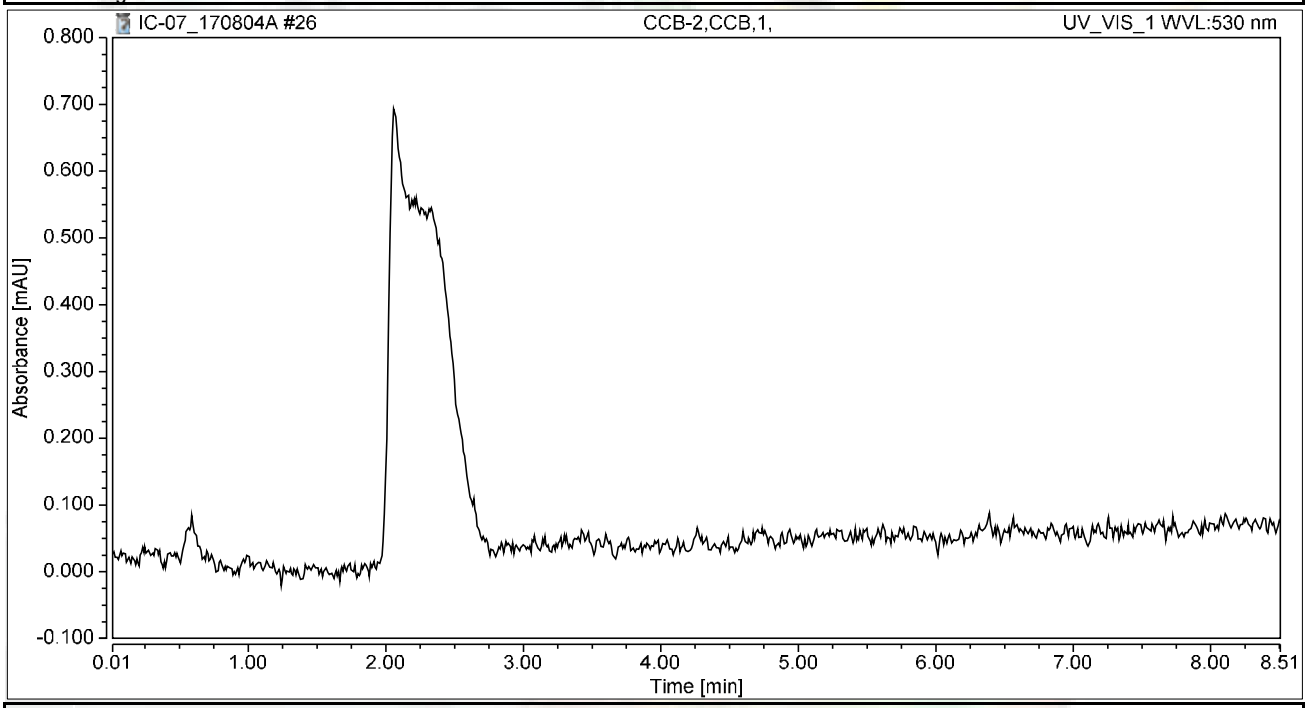
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	2.618	18.765	100.00	100.00	9.9392
Total:			**2.618**	**18.765**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

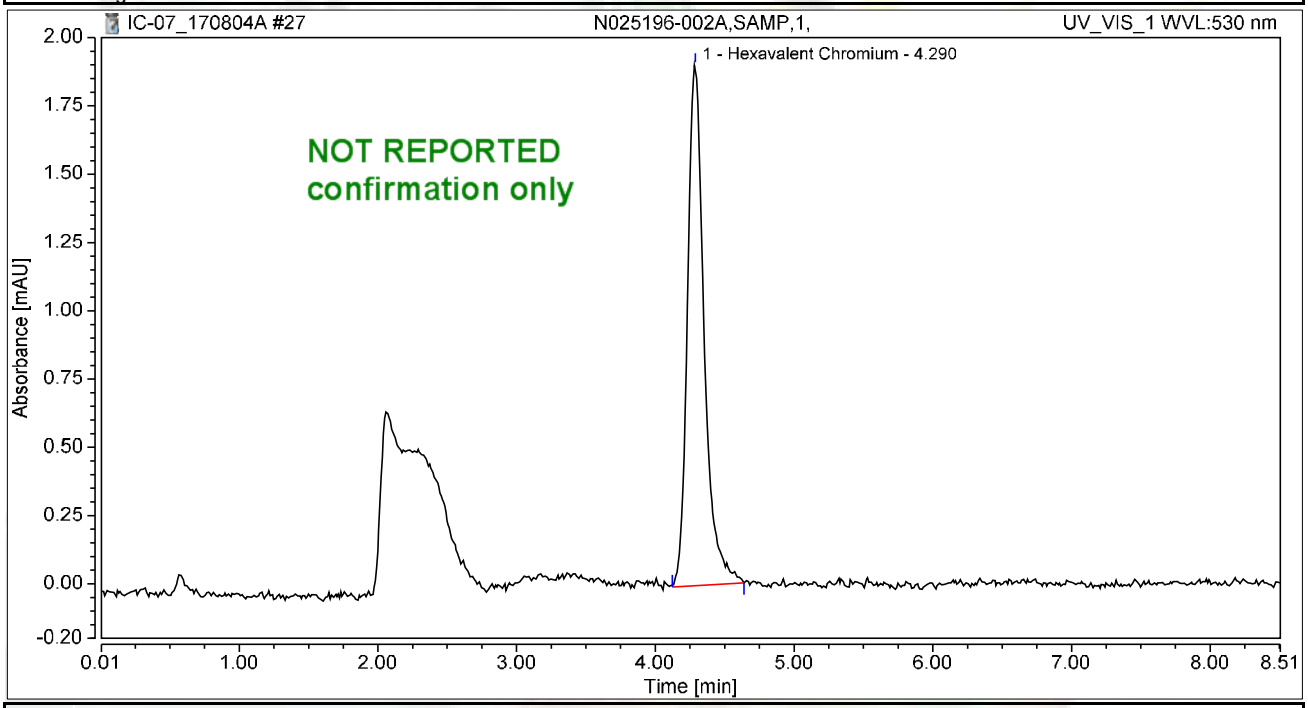
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025196-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 12:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

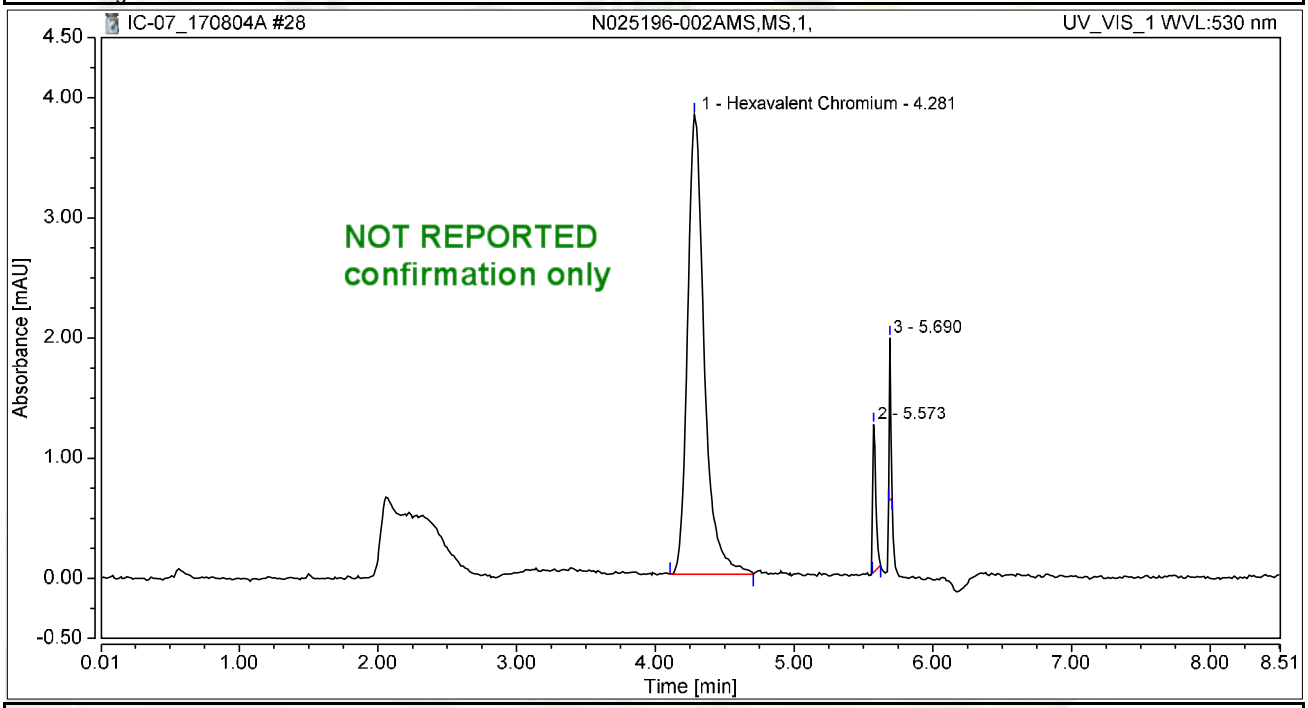
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	0.266	1.905	100.00	100.00	1.0086
Total:			**0.266**	**1.905**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025196-002AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

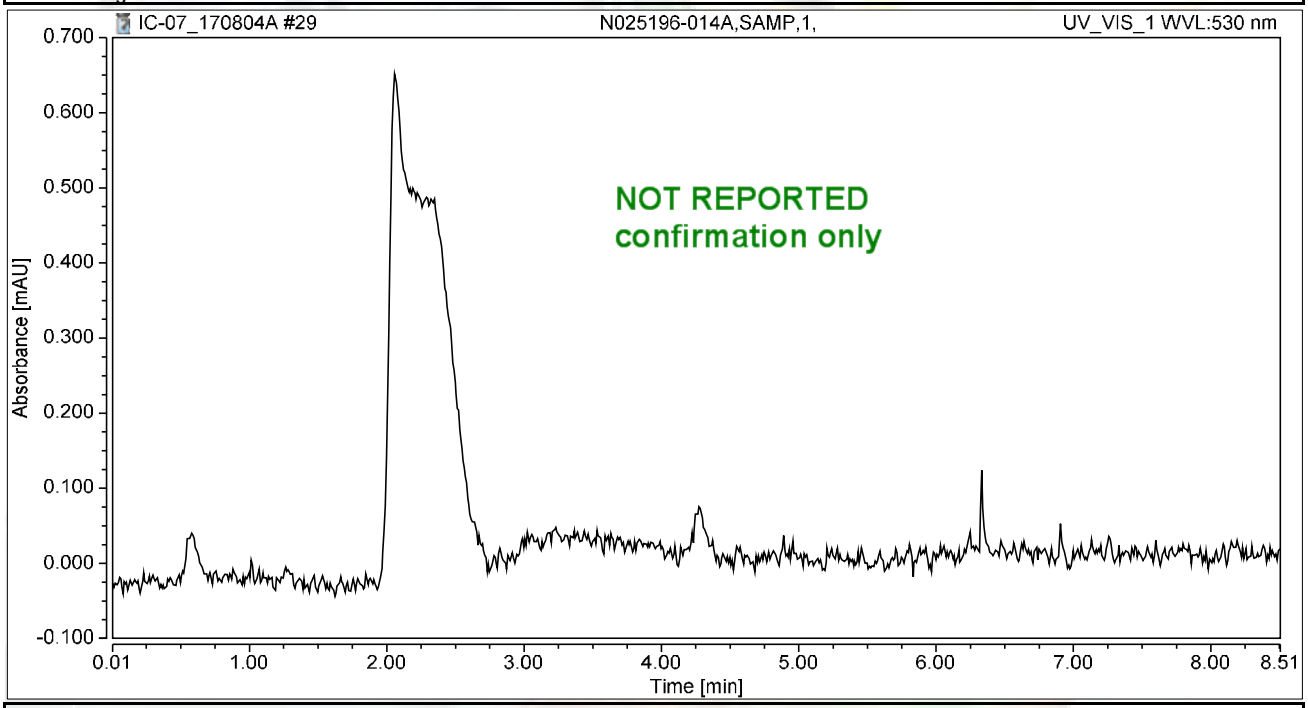
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	0.534	3.824	92.24	59.70	2.0269
2		5.573	0.029	1.231	4.93	19.22	n.a.
3		5.690	0.016	1.350	2.83	21.08	n.a.
Total:			**0.579**	**6.405**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025196-014A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 12:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

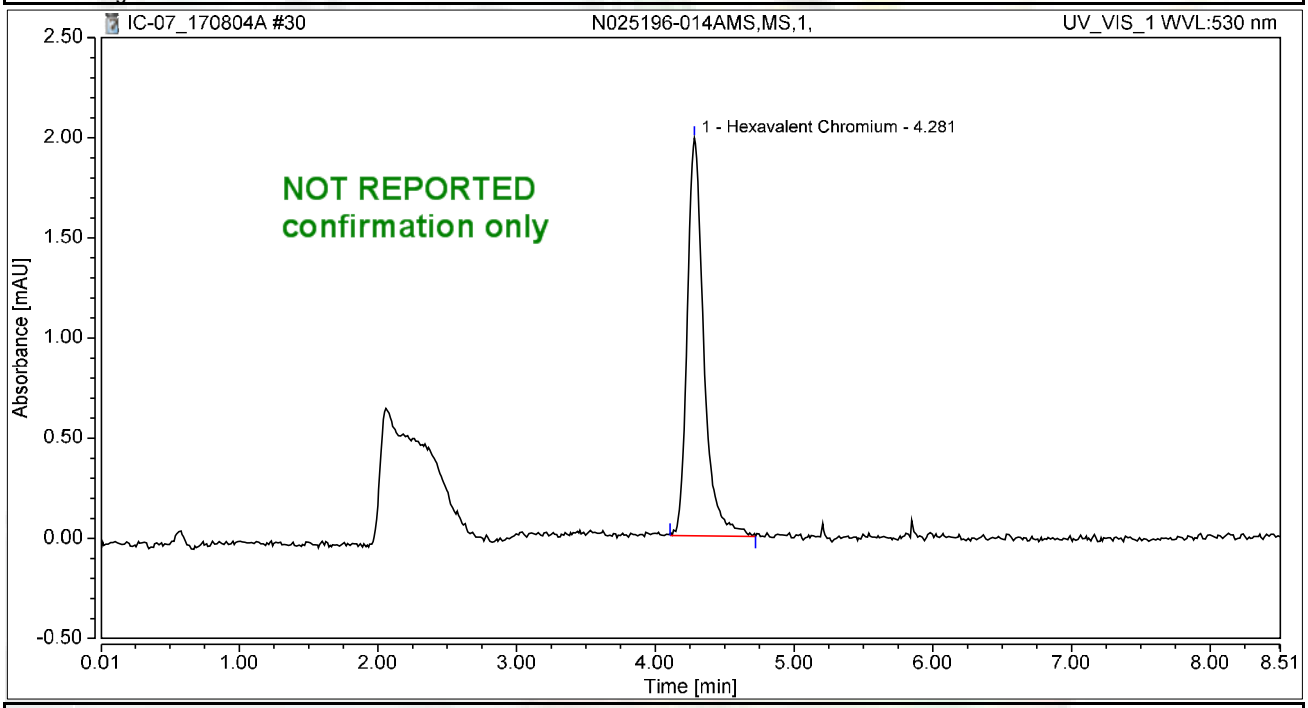
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025196-014AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 12:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

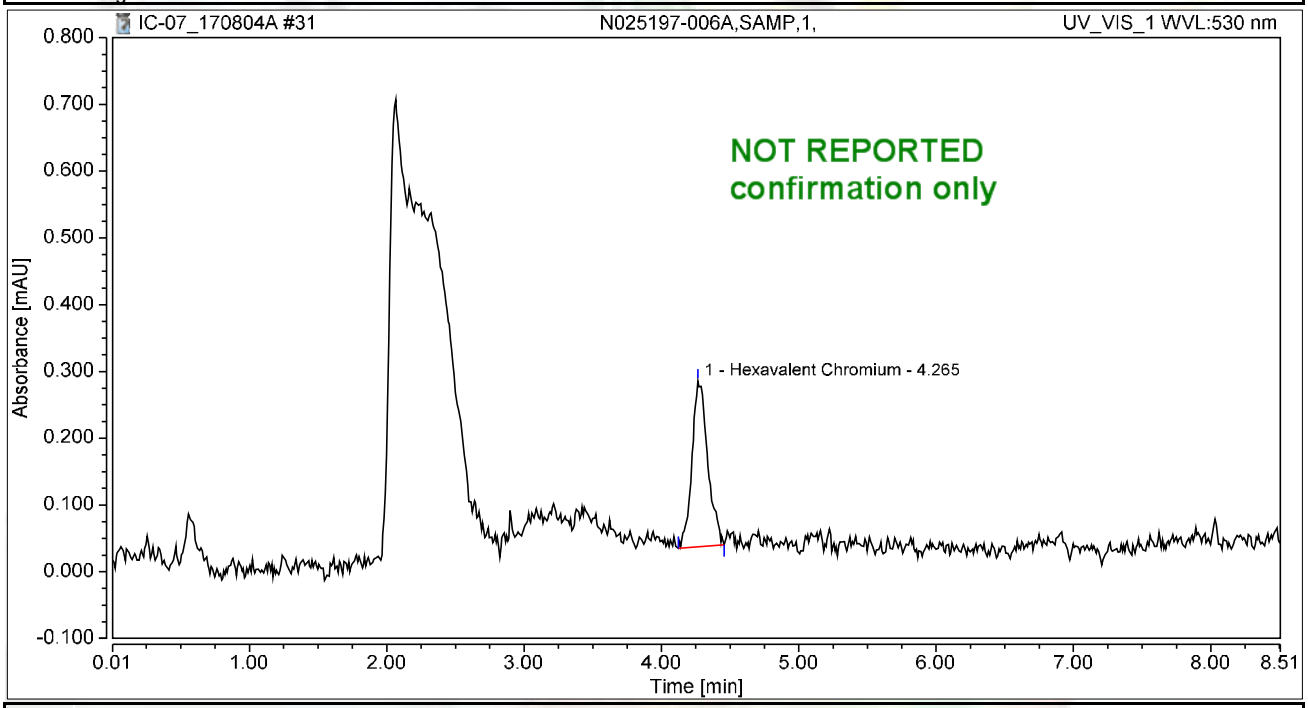
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	0.275	1.985	100.00	100.00	1.0445
Total:			**0.275**	**1.985**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025197-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 12:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

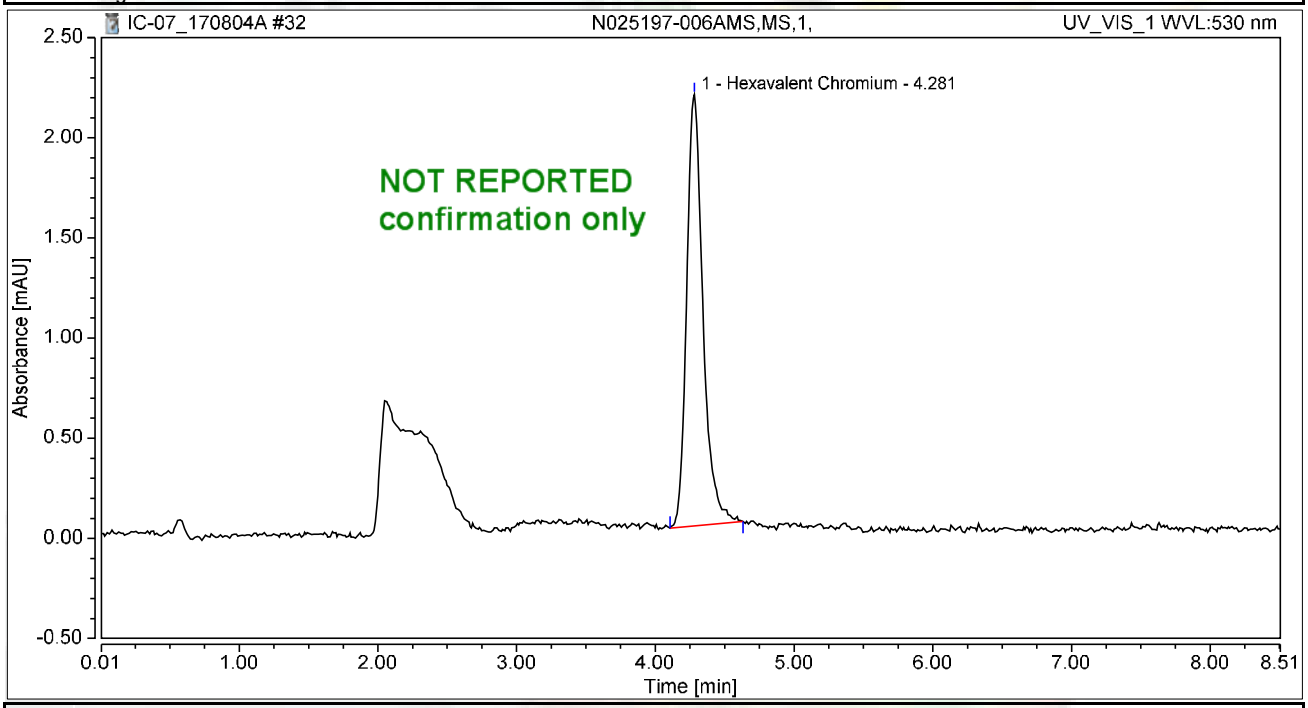
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.265	0.033	0.248	100.00	100.00	0.1252
Total:			**0.033**	**0.248**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025197-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

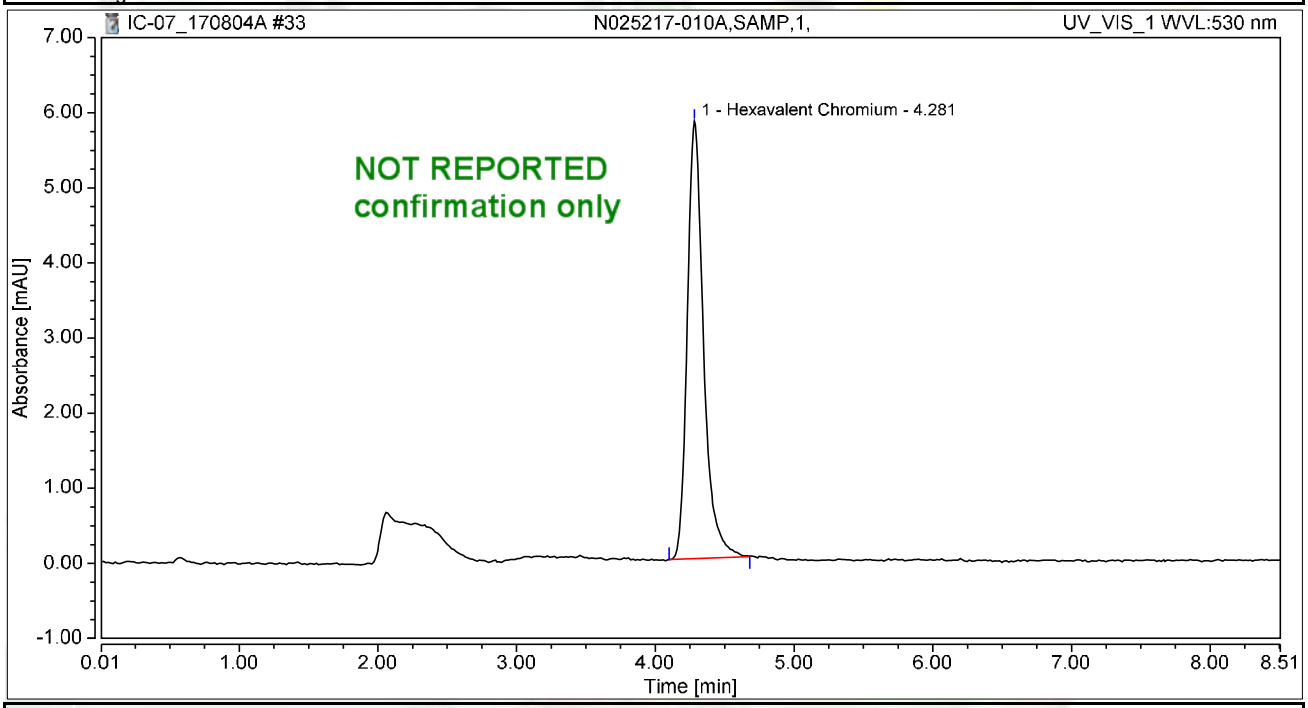
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	0.293	2.154	100.00	100.00	1.1121
Total:			**0.293**	**2.154**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025217-010A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 13:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

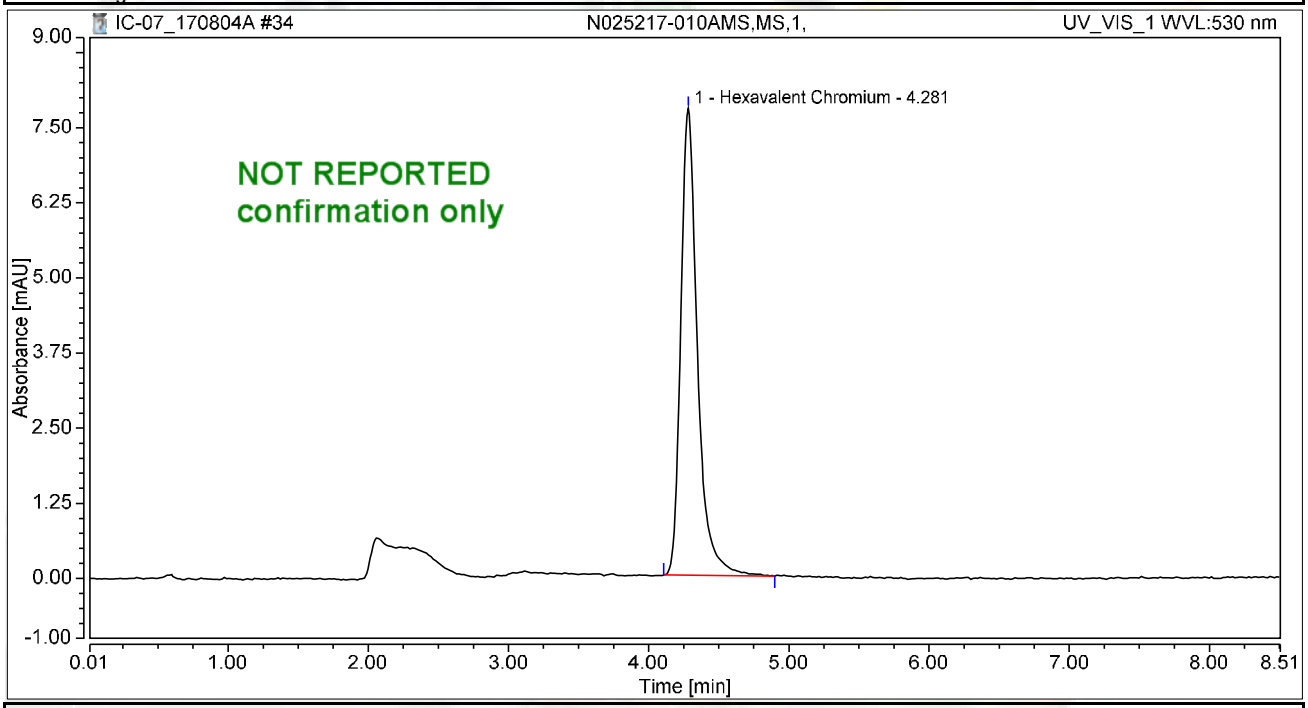
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	0.790	5.824	100.00	100.00	2.9996
Total:			**0.790**	**5.824**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025217-010AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

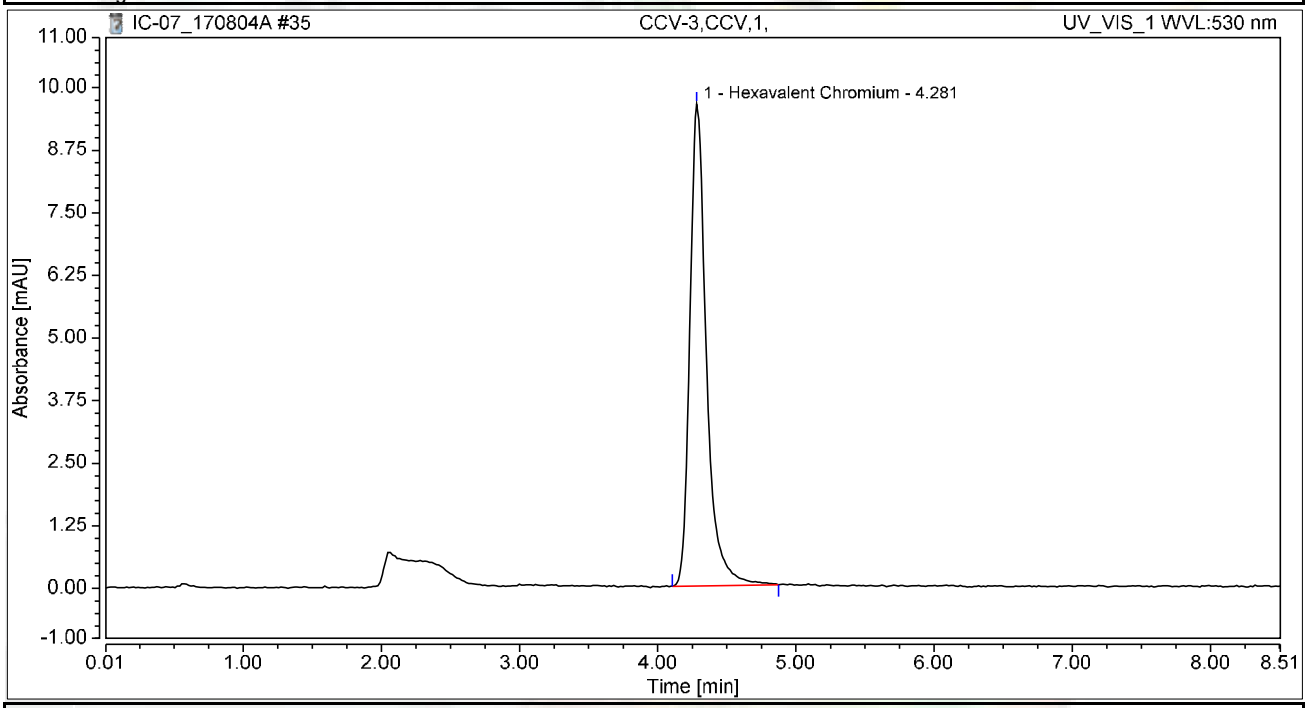
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	1.072	7.769	100.00	100.00	4.0680
Total:			**1.072**	**7.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 13:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

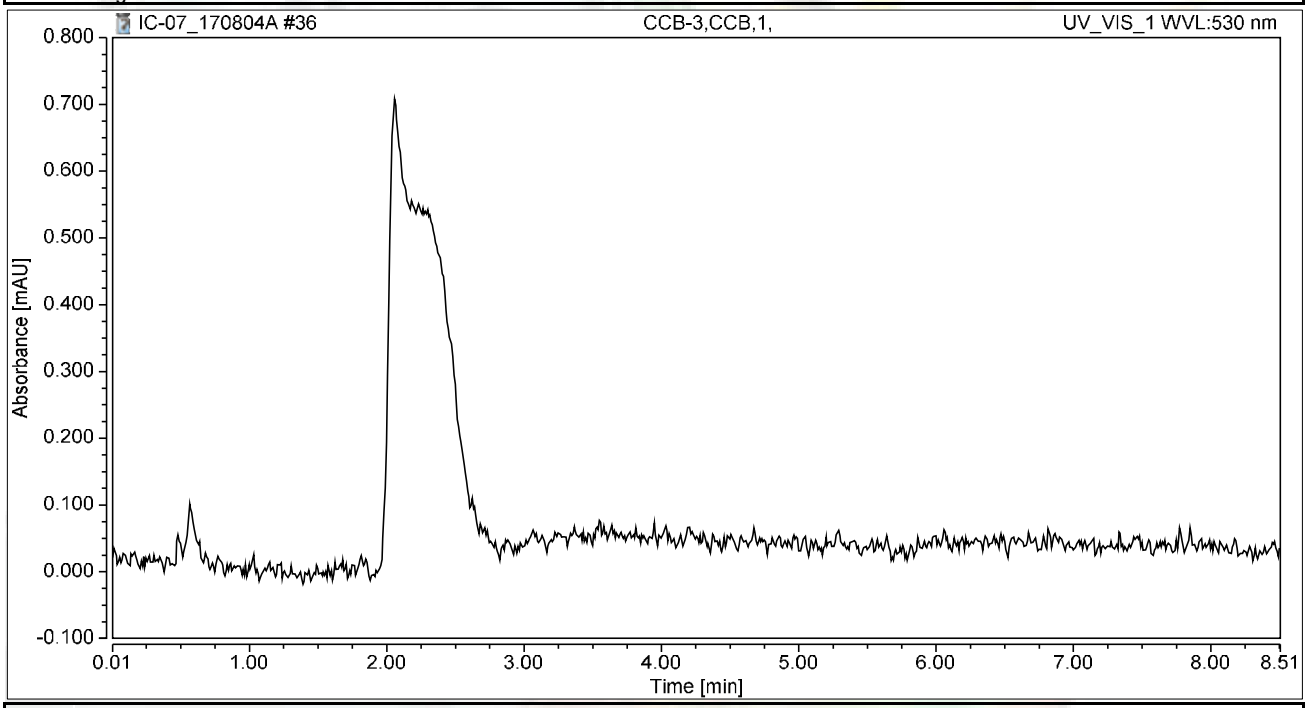
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.281	1.340	9.626	100.00	100.00	5.0856
Total:			**1.340**	**9.626**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Aug/17 13:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R116837 **Analyst:** LSR

ASSET #: N025313 **Date Analyzed:** 8/3/2017

Method: EPA 2320

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 8/7/2017

2nd Level Reviewer: 8/18/2017 Date:

SAMPLE CALCULATION

Sample ID: **N025313-001C @ pH 7.99**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (12.10 mL)

= **0.02066 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.50) (0.02066 N) (1) * 1000

= 216.9300 mg**/L**

Reporting results in two significant figures,

= **220 mg/L** as CaCO3

Julia Ramit 8/7/2017

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02066 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (10.50 mL) (0.02066) (1) * 1000

= 216.9300 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **216.9300 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **220 mg/L**

Julia Ramit 8/7/2017

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.61	50	0.00	0.050	MBLK
LCS-1	8.52	50	0.05	4.65	LCS
N025299-001A	7.69	50	0.00	10.30	SAMP
N025313-001C	7.99	50	0.00	10.50	SAMP
N025313-002C	7.79	50	0.00	7.00	SAMP
N025313-001CDUP	7.92	50	0.00	10.30	DUP
N025313-002CMS	7.93	50	0.00	11.30	MS
N025313-002CMSD	7.86	50	0.00	11.20	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**12.10**	ml
N H2SO4	**0.02066**	Normal
Date Analyzed:	**8/3/17**	
Time:	**8:10 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-150601A**	
Sulfuric Acid:	**R170315B**	

Julia Ramit 8/7/2017

Date Analyzed:	8/3/17		Reagents:					Standardization:					P = 0
Time Started:	8:10 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	12.1	mL		P = 1/2 T
				Sulfuric Acid:		R170315B							P > 1/2 T
									N H2SO4	0.02066	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.61				0.02066	0.00	0.05	0.05	1	0.00	1.03	
LCS-1	50	8.52				0.02066	0.05	4.60	4.65	1	1.03	96.07	
N025299-001A	50	7.69				0.02066	0.00	10.30	10.30	1	0.00	212.81	
N025313-001C	50	7.99				0.02066	0.00	10.50	10.50	1	0.00	216.94	
N025313-002C	50	7.79				0.02066	0.00	7.00	7.00	1	0.00	144.63	
N025313-001CDU	50	7.92				0.02066	0.00	10.30	10.30	1	0.00	212.81	
N025313-002CMS	50	7.93				0.02066	0.00	11.30	11.30	1	0.00	233.47	
N025313-002CMS	50	7.86				0.02066	0.00	11.20	11.20	1	0.00	231.40	

Julia Ramit 8/7/2017

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	8/3/17
Time:	8:10 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.03	1.03	1.03		P = 0
LCS-1	0.00	2.07	94.01	96.07	96.07		P < 1/2 T
N025299-001A	0.00	0.00	212.81	212.81	212.81		P = 0
N025313-001C	0.00	0.00	216.94	216.94	216.94		P = 0
N025313-002C	0.00	0.00	144.63	144.63	144.63		P = 0
N025313-001CDUP	0.00	0.00	212.81	212.81	212.81		P = 0
N025313-002CMS	0.00	0.00	233.47	233.47	233.47		P = 0
N025313-002CMSD	0.00	0.00	231.40	231.40	231.40		P = 0

Silvia Ramit 8/7/2017

Matrix: H_2O

Date Extracted: 8/3/17
Time Extracted: 8/3/17
Extracted By: QR

Date Analyzed: 8/3/17
Time Analyzed: 810
Analyzed By: LER

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: –
Sulfuric Acid: R170315B
Sodium Bicarbonate: CINV-150601A

pH meter CALIBRATION:
SLOPE: 99.1%
pH 7 - 7.01 @ 24.7°C - CINV170125C
4 - 4.02 @ 24.8°C - 170125B
10 - 10.03 @ 24.7°C - 170331A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARD PIZZON											
	#1	50 mL	10.73	MST170803A	5 mL	0.05 N	–	–	12.10	50/50	N H_2SO_4 = (2.65 g/L)(5 mL) / (53)(V titrant)	= 0.020661157
	#2	↓	10.71	↓	↓	↓	–	–	12.10	↓		
1)	MBLK	50mL	5.61	–	–	–	0.02066	0	0.05	50/50		
2)	LCS	↓	8.52	MST170803B	1mL	0.05N	↓	0.05	4.65	↓		
3)	N025299-001A	↓	7.69	–	–	–	↓	0	10.30	↓		
4)	N025313-001C	↓	7.94	–	–	–	↓	0	10.50	↓		
5)	2C	↓	7.79	–	–	–	↓	0	7.0	↓		
6)	1CDUP	↓	7.92	–	–	–	↓	0	10.30	↓		
7)	2CMS	↓	7.93	MST170803B	1mL	0.05N	↓	0	11.30	↓		
8)	2CMSD	↓	7.86	↓	↓	↓	↓	0	11.20	↓		
9)												
10)												
11)												
12)												
13)												
14)												
15)												
16)				P = (V pH 8.3)(N H_2SO_4)(50,000) / VSx								
17)												
18)												
19)				T = (V pH 4.5)(N H_2SO_4)(50,000) / VSx								
20)												
	MS											
	MSD											
	LCS											

Julia Ramit 8/7/2017

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R116885
ASSET #: N025313

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 8/3/2017

Method:

[X] EPA 300.0
[ ] EPA 7199

[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: rba Date: 8/7/2017

2nd Level Reviewer: [signature] Date: 08/15/2017

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N025313-001C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 5.2401 * 200

= 1048.02

Reporting result in two significant values,

Chloride, mg/L = 1000

rba 8/7/2017

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 8
Created: 7/10/2017 11:02:00 AM by IC-05
Last Update: 7/10/2017 1:08:19 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time
1	Std - 0	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 11:07:33 AM
2	Std - 1	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 11:32:37 AM
3	Std - 2	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 11:47:55 AM
4	Std - 3	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 12:03:13 PM
5	Std - 4	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 12:18:31 PM
6	Std - 5	Standard	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 12:33:49 PM
7	ICV,ICV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 1:08:22 PM
8	ICB,ICB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished	7/10/2017 1:23:39 PM

jrba 7/12/2017

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 8
Created: 7/10/2017 11:02:00 AM by IC-05
Last Update: 7/10/2017 1:08:19 PM by IC-05

No.	Name	Comment
1	Std - 0	BLANK
2	Std - 1	STD-LOW
3	Std - 2	STD
4	Std - 3	STD
5	Std - 4	STD
6	Std - 5	STD-HIGH
7	ICV,ICV,1	ICV
8	ICB,ICB,1	ICB

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 25
Created: 8/3/2017 9:10:08 AM by IC-05
Last Update: 8/3/2017 1:37:18 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	Std - 0	Standard	1000.0	Anions Default	Anions_170710	Finished
2	Std - 1	Standard	1000.0	Anions Default	Anions_170710	Finished
3	Std - 2	Standard	1000.0	Anions Default	Anions_170710	Finished
4	Std - 3	Standard	1000.0	Anions Default	Anions_170710	Finished
5	Std - 4	Standard	1000.0	Anions Default	Anions_170710	Finished
6	Std - 5	Standard	1000.0	Anions Default	Anions_170710	Finished
7	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
8	CCV-1,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
9	CCB-1,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
10	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
11	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
12	N025313-001C,SAMP,200	Unknown	1000.0	Anions Default	Anions_170710	Finished
13	N025313-001CMS,MS,200	Unknown	1000.0	Anions Default	Anions_170710	Finished
14	N025313-001CMSD,MSD,200	Unknown	1000.0	Anions Default	Anions_170710	Finished
15	N025313-002C,SAMP,500	Unknown	1000.0	Anions Default	Anions_170710	Finished
16	N025313-002CDUP,DUP,500	Unknown	1000.0	Anions Default	Anions_170710	Finished
17	N025313-001C,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
18	N025313-001CMS,MS,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
19	N025313-001CMSD,MSD,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
20	CCV-2,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
21	CCB-2,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
22	N025313-002C,SAMP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
23	N025313-002CDUP,DUP,50	Unknown	1000.0	Anions Default	Anions_170710	Finished
24	CCV-3,CCV,1	Unknown	1000.0	Anions Default	Anions_170710	Finished
25	CCB-3,CCB,1	Unknown	1000.0	Anions Default	Anions_170710	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 25
Created: 8/3/2017 9:10:08 AM by IC-05
Last Update: 8/3/2017 1:37:18 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	Std - 0	7/10/2017 11:07:33 AM	BLANK
2	Std - 1	7/10/2017 11:32:37 AM	STD-LOW
3	Std - 2	7/10/2017 11:47:55 AM	STD
4	Std - 3	7/10/2017 12:03:13 PM	STD
5	Std - 4	7/10/2017 12:18:31 PM	STD
6	Std - 5	7/10/2017 12:33:49 PM	STD-HIGH
7	BLANK,BLANK,1	8/3/2017 9:10:35 AM	BLANK,BLANK,1
8	CCV-1,CCV,1	8/3/2017 9:25:53 AM	CCV
9	CCB-1,CCB,1	8/3/2017 9:41:12 AM	CCB
10	MB-H2O,MBLK,1	8/3/2017 9:56:29 AM	METHOD BLANK
11	LCS-H2O,LCS,1	8/3/2017 10:11:47 AM	LCS
12	N025313-001C,SAMP,200	8/3/2017 10:27:05 AM	SAMP,0.05>10mL
13	N025313-001CMS,MS,200	8/3/2017 10:42:23 AM	MS,0.05>10mL
14	N025313-001CMSD,MSD,200	8/3/2017 10:57:42 AM	MSD,0.05>10mL
15	N025313-002C,SAMP,500	8/3/2017 11:13:00 AM	SAMP,0.02>10mL
16	N025313-002CDUP,DUP,500	8/3/2017 11:28:18 AM	DUP,0.02>10mL
17	N025313-001C,SAMP,50	8/3/2017 11:43:36 AM	SAMP,0.2>10mL
18	N025313-001CMS,MS,50	8/3/2017 11:58:53 AM	MS,0.2>10mL
19	N025313-001CMSD,MSD,50	8/3/2017 12:14:11 PM	MSD,0.2>10mL
20	CCV-2,CCV,1	8/3/2017 12:29:29 PM	CCV
21	CCB-2,CCB,1	8/3/2017 12:44:48 PM	CCB
22	N025313-002C,SAMP,50	8/3/2017 1:00:05 PM	SAMP,0.2>10mL
23	N025313-002CDUP,DUP,50	8/3/2017 1:15:23 PM	DUP,0.2>10mL
24	CCV-3,CCV,1	8/3/2017 1:37:24 PM	CCV
25	CCB-3,CCB,1	8/3/2017 1:52:42 PM	CCB

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 7/10/2017

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0749	0.1479	0.3046	0.7669	1.5836	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST160817B

Calibration Acceptance Criteria: > 0.995 Correlation

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

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 7/10/2017

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0574	0.2231	0.4516	1.1686	2.3701	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST160817G

Calibration Acceptance Criteria: > 0.995 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **ICV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2721725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.056	0.50	2.000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.011	0.50	2.000	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.010	0.50	2.000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.042	0.50	2.000	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **ICV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2721740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.830	0.50	4.000	0	95.8	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.953	0.50	4.000	0	98.8	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.950	0.50	4.000	0	98.7	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCV**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.989	0.50	4.000	0	99.7	90	110				

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **ICB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2721726**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721728**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721737**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721739**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **ICB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **7/10/2017**	SeqNo: **2721741**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721743**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721750**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **116885**
Client ID: **CCB**	Batch ID: **R116885**	TestNo: **EPA 300.0**		Analysis Date: **8/3/2017**	SeqNo: **2721754**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 8/3/2017

Sample Name	Retention Time		Evaluation
CCV-1	Chloride	3.947	
CCV-2	Chloride	3.950	
CCV-3	Chloride	3.947	
Average		3.948	
Applied RT Window		3.748 - 4.148	
MB-R116885_CL	Chloride	N.A.	N.A.
LCS-R116885_CL	Chloride	3.947	PASS
N025313-001C	Chloride	3.947	PASS
N025313-001CMS	Chloride	3.947	PASS
N025313-001CMSD	Chloride	3.947	PASS
N025313-002C	Chloride	3.947	PASS
N025313-002CDUP	Chloride	3.947	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 8/3/2017

Sample Name		Retention Time	Evaluation
CCV-1	Sulfate	8.373	
CCV-2	Sulfate	8.373	
CCV-3	Sulfate	8.370	
	Average	8.372	
	Applied RT Window	8.172 - 8.572	
MB-R116885_SO4	Sulfate	N.A.	N.A.
LCS-R116885_SO4	Sulfate	8.370	PASS
N025313-001C	Sulfate	8.390	PASS
N025313-001CMS	Sulfate	8.400	PASS
N025313-001CMSD	Sulfate	8.377	PASS
N025313-002C	Sulfate	8.374	PASS
N025313-002CDUP	Sulfate	8.374	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

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

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2017

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/26/2017
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.024	0.10	0.0906	**91**
Chloride	**0.0091**	0.020	0.130	0.50	0.5635	**113**
Nitrite	**0.0030**	0.010	0.023	0.05	0.0581	**116**
Bromide	**0.0196**	0.040	0.048	0.20	0.194	**97**
Nitrate	**0.0050**	0.010	0.023	0.05	0.0599	**120**
Phosphate	**0.0135**	0.030	0.043	0.10	0.1111	**111**
Sulfate	**0.0229**	0.050	0.195	0.50	0.6178	**124**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117105 **Analyst:** REB

ASSET #: N025313 **Date Analyzed:** 8/15/2017

Method: 4500_NO3

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer RB 08/16/17 Date: ——

2nd Level Reviewer [signature] Date: 08/18/2017

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N025313-002D** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.5849*5

= 2.9245 mg/L

Reporting results in two significant figures:

Nitrate/Nitrite-N, mg/L = 2.9

RLB 08/16/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

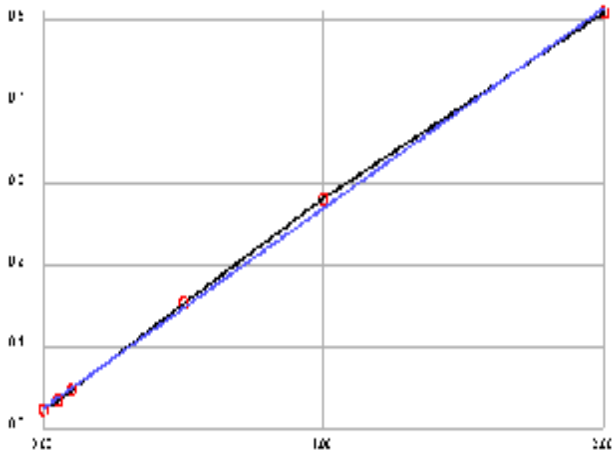
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2451x + 0.0257
Correlation	.99942

Calibrant	Energy	Set	Conc
1	0.0227	0.0000	-0.0123
2	0.0346	0.0500	0.0363
3	0.0470	0.1000	0.0869
4	0.1537	0.5000	0.5221
5	0.2814	1.0000	1.0431
6	0.5096	2.0000	1.9739

Notes:

2% CuSO4- R170731B
R1 Buffer- R170731C
R2 Coloring reagent- R170731D

STD 1°- ISST160817E
STD 2°- ISST170419E

08/16/17

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117105**
Client ID: **ICV**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.499	0.050	0.5000	0	99.7	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117105**
Client ID: **CCV**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733108**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.477	0.050	0.5000	0	95.4	90	110				

RJB 08/16/17

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025313
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117105**
Client ID: **ICB**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733099**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117105**
Client ID: **CCB**	Batch ID: **R117105**	TestNo: **SM4500-NO3**		Analysis Date: **8/15/2017**	SeqNo: **2733109**

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

Qualifiers:

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

08/16/17

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 08-15-2017 09:46
Time end: 08-15-2017 11:17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	10:58:56	-0.0127		0.0226
2	<BLANK>	10:59:51	-0.0110		0.0230
3	<CAL1>	11:00:52	-0.0123	[0]	0.0227
4	<CAL2>	11:01:34	0.0363	[0.05]	0.0346
5	<CAL3>	11:02:23	0.0869	[0.1]	0.0470
6	<CAL4>	11:03:05	0.5221	[0.5]	0.1537
7	<CAL5>	11:03:55	1.0431	[1]	0.2814
8	<CAL6>	11:04:37	1.9739	[2]	0.5096
9	,BLANK,BLANK,1,	11:05:20	0.0102		0.0282
10	,ICV,ICV,1,	11:06:09	0.4985		0.1479
11	,ICB,ICB,1,	11:06:51	-0.0066		0.0241
12	,MB-H2O,MBLK,1,	11:07:40	-0.0147		0.0221
13	,LCS-H2O,LCS,1,	11:08:22	0.5042		0.1493
14	,N025313-001D,SAMP,1,	11:09:05	0.0098		0.0281
15	,N025313-002D,SAMP,5,	11:09:53	0.5849		0.1691
16	,N025313-002DDUP,DUP,5,	11:10:37	0.6559		0.1865
17	,N025313-002DMS,MS,5,	11:11:20	1.0341		0.2792
18	,N025313-002DMSD,MSD,5,	11:12:08	1.0337		0.2791
19	,N025284-002D,SAMP,5,	11:12:51	0.5168		0.1524
20	,BLANK,	11:13:39	-0.0078		0.0238
21	,CCV-1,CCV,1,	11:14:22	0.4768		0.1426
22	,CCB-1,CCB,1,	11:15:04	-0.0106		0.0231

08/16/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 08/15/17
Time Analyzed:09:46 AM
Analyzed By: REB

Reagent ID #
Ammonium Chloride reagent/Buffer: R170731C
Color reagent: R170731D
2% Copper Sulfate: R170731B
Ammonium Hydroxide: CINV-170424A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)
1)	N025284-002D		7.60						
2)	N025313-001D		7.88						
3)	N025313-002D		7.60						
4)									
5)									
6)									
7)									
8)									
9)									
10)									
11)									
12)									
13)									
14)									
15)									
16)									
17)									
18)									
19)									
20)									
21)									
22)									
23)									

Advanced Technology Laboratories, Inc.
Book # 1

RB 08/16/17

August 31, 2017

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

TEL: (916) 786-3302
FAX:

Workorder No.: N025493

RE: PG&E Topock - RMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 16, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Ribucao for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

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

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025493-001A	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001B	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001C	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001D	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001E	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-002A	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002B	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002C	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002D	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002E	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-003A	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003B	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003C	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003D	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003E	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-004A	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004B	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004C	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004D	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004E	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-005A	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005B	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005C	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005D	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005E	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-006A	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-006B	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-006C	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-006D	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025493-006E	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-007A	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007B	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007C	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007D	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007E	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-008A	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008B	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008C	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008D	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008E	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-009A	SW1-Q317	Groundwater	8/16/2017 2:40:00 PM	8/16/2017	8/31/2017
N025493-009B	SW1-Q317	Groundwater	8/16/2017 2:40:00 PM	8/16/2017	8/31/2017
N025493-009C	SW1-Q317	Groundwater	8/16/2017 2:40:00 PM	8/16/2017	8/31/2017
N025493-010A	SW2-Q317	Groundwater	8/16/2017 3:00:00 PM	8/16/2017	8/31/2017
N025493-010B	SW2-Q317	Groundwater	8/16/2017 3:00:00 PM	8/16/2017	8/31/2017
N025493-010C	SW2-Q317	Groundwater	8/16/2017 3:00:00 PM	8/16/2017	8/31/2017
N025493-011A	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011B	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011C	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011D	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011E	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-012A	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012B	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012C	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012D	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012E	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-013A	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-013B	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-013C	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025493-013D	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-013E	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-014A	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014B	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014C	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014D	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014E	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-015A	AB1-Q317	Groundwater	8/16/2017 10:10:00 AM	8/16/2017	8/31/2017
N025493-016A	AB2-Q317	Groundwater	8/16/2017 1:55:00 PM	8/16/2017	8/31/2017
N025493-017A	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017B	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017C	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017D	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017E	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	990	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	990	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 2:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 3:00:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	990	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N025493-001DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	117177
Client ID:	ZZZZZZ	Batch ID:	R117177	TestNo:	EPA 120.1			Analysis Date:	8/17/2017	SeqNo:	2735084

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	986.000	0.10						989.0	0.304	10	

Sample ID	N025493-011DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	117177
Client ID:	ZZZZZZ	Batch ID:	R117177	TestNo:	EPA 120.1			Analysis Date:	8/17/2017	SeqNo:	2735096

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	972.000	0.10						977.0	0.513	10	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-001

Client Sample ID: C-R22A-D-Q317
Collection Date: 8/16/2017 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-002

Client Sample ID: C-R22A-S-Q317
Collection Date: 8/16/2017 11:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-006

Client Sample ID: MW-912-Q317
Collection Date: 8/16/2017 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-007

Client Sample ID: C-TAZ-S-Q317
Collection Date: 8/16/2017 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	18	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 2:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-010

Client Sample ID: SW2-Q317
Collection Date: 8/16/2017 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-011

Client Sample ID: C-BNS-Q317
Collection Date: 8/16/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-013

Client Sample ID: MW-910-Q317
Collection Date: 8/16/2017 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-017

Client Sample ID: R-28-Q317
Collection Date: 8/16/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025493-001DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117176**
Client ID: **ZZZZZZ**	Batch ID: **R117176**	TestNo: **SM4500-H+B**		Analysis Date: **8/17/2017**	SeqNo: **2735067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.090	0.10						8.050	0.496	10	H
Temp. at time of pH Analysis	18.400	0.10						18.80	2.15	10	H

Sample ID **N025493-011DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117176**
Client ID: **ZZZZZZ**	Batch ID: **R117176**	TestNo: **SM4500-H+B**		Analysis Date: **8/17/2017**	SeqNo: **2735078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.040	0.10						8.040	0	10	H
Temp. at time of pH Analysis	18.900	0.10						19.00	0.528	10	H

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D** QC Batch: **63368**					PrepDate **8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D** QC Batch: **63368**					PrepDate **8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D** QC Batch: **63368**				PrepDate	**8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	16	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817E** QC Batch: **63369**					PrepDate **8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817E**	QC Batch: **63369**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817E** QC Batch: **63369**					PrepDate **8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	**LCS-63368**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/17/2017**	RunNo: **117178**
Client ID:	**LCSW**	Batch ID: **63368**	TestNo: **SM2540D**		Analysis Date: **8/17/2017**	SeqNo: **2735145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	937.000	10	1000	0	93.7	80	120				

Sample ID	**MB-63368**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/17/2017**	RunNo: **117178**
Client ID:	**PBW**	Batch ID: **63368**	TestNo: **SM2540D**		Analysis Date: **8/17/2017**	SeqNo: **2735146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	**N025493-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/17/2017**	RunNo: **117178**
Client ID:	**ZZZZZZ**	Batch ID: **63368**	TestNo: **SM2540D**		Analysis Date: **8/17/2017**	SeqNo: **2735148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-63369	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117179
Client ID:	LCSW	Batch ID:	63369	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735158

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	939.000	10	1000	0	93.9	80	120				

Sample ID	MB-63369	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117179
Client ID:	PBW	Batch ID:	63369	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735159

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N025493-013DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117179
Client ID:	ZZZZZZ	Batch ID:	63369	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735162

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 10:08 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 10:52 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-002

Client Sample ID: C-R22A-S-Q317
Collection Date: 8/16/2017 11:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 10:38 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-003

Client Sample ID: C-R27-D-Q317
Collection Date: 8/16/2017 12:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 10:57 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:26 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 11:44 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:31 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 12:03 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:48 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-006

Client Sample ID: MW-912-Q317
Collection Date: 8/16/2017 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 12:22 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:53 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 12:41 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:59 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-008

Client Sample ID: R-63-Q317
Collection Date: 8/16/2017 10:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 01:00 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:04 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 2:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 01:38 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 3:00:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 01:57 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:15 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 02:16 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:21 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 02:35 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:26 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-013

Client Sample ID: MW-910-Q317
Collection Date: 8/16/2017 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 04:52 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:32 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 05:29 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:37 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	AB1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 05:48 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	AB2-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:55:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 06:07 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-017

Client Sample ID: R-28-Q317
Collection Date: 8/16/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 06:26 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:03 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R117235**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **PBW**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737759**

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

Sample ID **LCS-R117235**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **LCSW**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.887	0.20	5.000	0	97.7	90	110				

Sample ID **N025493-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.031	0.20	1.000	0.05520	97.6	90	110				

Sample ID **N025493-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.038	0.20	1.000	0.05520	98.3	90	110	1.031	0.677	20	

Sample ID **N025493-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.027	0.20	1.000	0.04600	98.0	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025493-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737767

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.036	0.20	1.000	0.04150	99.5	90	110				

Sample ID	N025493-003ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737768

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.043	0.20						0.04150	0	20	

Sample ID	N025493-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737772

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.057	0.20	1.000	0.05380	100	90	110				

Sample ID	N025493-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737774

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.064	0.20	1.000	0.04770	102	90	110				

Sample ID	N025493-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737776

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0.05190	101	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025493-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737778

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0.04860	102	90	110				

Sample ID	N025493-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737780

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.061	0.20	1.000	0.05100	101	90	110				

Sample ID	N025493-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737784

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.069	0.20	1.000	0.05260	102	90	110				

Sample ID	N025493-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737786

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.002	0.20	1.000	0.05390	94.8	90	110				

Sample ID	N025493-011AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737788

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0.07210	96.0	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N025493-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.058	0.20	1.000	0.05620	100	90	110				

Sample ID **N025493-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0.06060	99.8	90	110				

Sample ID **N025493-014AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.066	0.20	1.000	0.05420	101	90	110				

Sample ID **N025493-015AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.026	0.20	1.000	0.03560	99.1	90	110				

Sample ID **N025493-016AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.009	0.20	1.000	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025493-017AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737808

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.039	0.20	1.000	0.04630	99.3	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63426	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	PBW	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748948

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

Sample ID	LCS-63426	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	LCSW	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748949

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.574	1.0	10.00	0	95.7	85	115				

Sample ID	N025493-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748953

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.558	1.0	10.00	0	85.6	75	125				

Sample ID	N025493-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748954

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.672	1.0	10.00	0	86.7	75	125	8.558	1.32	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170822J**	QC Batch: **R117361**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/22/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.42	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R117361	**MBLK**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **PBW**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742821**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R117361	**LCS**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **LCSW**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.495	0.050	0.5000	0	98.9	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-001EDUP	**DUP**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **ZZZZZZ**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.381	0.050						0.4075	6.80	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-001EMS	**MS**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **ZZZZZZ**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.822	0.050	0.5000	0.4075	82.9	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-001EMSD	**MSD**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **ZZZZZZ**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.864	0.050	0.5000	0.4075	91.3	75	125	0.8218	5.03	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117445	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	PBW	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746243

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

Sample ID	LCS-R117445	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	LCSW	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746244

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101	85	115				

Sample ID	N025493-002EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746246

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.390	0.050						0.3978	1.98	20	

Sample ID	N025493-002EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746249

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.839	0.050	0.5000	0.3978	88.1	75	125				

Sample ID	N025493-002EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746250

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.844	0.050	0.5000	0.3978	89.2	75	125	0.8385	0.630	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-001

Client Sample ID: C-R22A-D-Q317
Collection Date: 8/16/2017 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:12 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	28	1.8	20		ug/L	1	8/29/2017 08:49 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-002

Client Sample ID: C-R22A-S-Q317
Collection Date: 8/16/2017 11:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 09:03 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	24	1.8	20		ug/L	1	8/29/2017 08:58 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-003

Client Sample ID: C-R27-D-Q317
Collection Date: 8/16/2017 12:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:39 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	47	1.8	20		ug/L	1	8/28/2017 09:51 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-004

Client Sample ID: C-R27-S-Q317
Collection Date: 8/16/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:44 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	45	1.8	20		ug/L	1	8/28/2017 09:56 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-005

Client Sample ID: C-TAZ-D-Q317
Collection Date: 8/16/2017 8:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:57 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	21	1.8	20		ug/L	1	8/28/2017 10:09 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-006

Client Sample ID: MW-912-Q317
Collection Date: 8/16/2017 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:01 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	110	1.8	20		ug/L	1	8/28/2017 10:13 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 09:12 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 09:07 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-008

Client Sample ID: R-63-Q317
Collection Date: 8/16/2017 10:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:10 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	100	1.8	20		ug/L	1	8/28/2017 10:22 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-011

Client Sample ID: C-BNS-Q317
Collection Date: 8/16/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	32	1.8	20		ug/L	1	8/29/2017 12:15 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	62	1.8	20		ug/L	1	8/28/2017 10:26 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-012

Client Sample ID: C-I-3-D-Q317
Collection Date: 8/16/2017 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:19 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	89	1.8	20		ug/L	1	8/28/2017 10:30 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-013

Client Sample ID: MW-910-Q317
Collection Date: 8/16/2017 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	34	1.8	20		ug/L	1	8/29/2017 12:24 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	120	1.8	20		ug/L	1	8/28/2017 10:35 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-014

Client Sample ID: C-I-3-S-Q317
Collection Date: 8/16/2017 10:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:28 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	28	1.8	20		ug/L	1	8/28/2017 10:39 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-017

Client Sample ID: R-28-Q317
Collection Date: 8/16/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:33 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	93	1.8	20		ug/L	1	8/28/2017 10:43 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**MB-63440**	SampType:	**MBLK**	TestCode:	**6010_WDPG**	Units:	**ug/L**	Prep Date:	**8/19/2017**	RunNo:	**117504**
Client ID:	**PBW**	Batch ID:	**63440**	TestNo:	**EPA 6010B**	**EPA 3010A**		Analysis Date:	**8/28/2017**	SeqNo:	**2749349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	**LCS-63440**	SampType:	**LCS**	TestCode:	**6010_WDPG**	Units:	**ug/L**	Prep Date:	**8/19/2017**	RunNo:	**117504**
Client ID:	**LCSW**	Batch ID:	**63440**	TestNo:	**EPA 6010B**	**EPA 3010A**		Analysis Date:	**8/28/2017**	SeqNo:	**2749350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	103.589	20	100.0	0	104	85	115				

Sample ID	**N025493-001B-MS**	SampType:	**MS**	TestCode:	**6010_WDPG**	Units:	**ug/L**	Prep Date:	**8/19/2017**	RunNo:	**117504**
Client ID:	**ZZZZZZ**	Batch ID:	**63440**	TestNo:	**EPA 6010B**	**EPA 3010A**		Analysis Date:	**8/28/2017**	SeqNo:	**2749354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.997	20	100.0	17.36	87.6	75	125				

Sample ID	**N025493-001B-MSD**	SampType:	**MSD**	TestCode:	**6010_WDPG**	Units:	**ug/L**	Prep Date:	**8/19/2017**	RunNo:	**117504**
Client ID:	**ZZZZZZ**	Batch ID:	**63440**	TestNo:	**EPA 6010B**	**EPA 3010A**		Analysis Date:	**8/28/2017**	SeqNo:	**2749355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.670	20	100.0	17.36	85.3	75	125	105.0	2.24	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	LCS-63439	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	LCSW	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749472

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	112.334	20	100.0	0	112	85	115				

Sample ID	N025493-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749476

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	141.118	20	100.0	28.11	113	75	125				

Sample ID	N025493-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749477

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	136.318	20	100.0	28.11	108	75	125	141.1	3.46	20	

Sample ID	MB-63439	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	PBW	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749492

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.926	20									

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 10:52 AM
Barium	120	0.070	1.0		µg/L	1	8/28/2017 10:52 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 10:52 AM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 10:52 AM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 10:52 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 11:20 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:20 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:20 AM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 11:20 AM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 11:20 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_170828B** QC Batch: **63426** PrepDate **8/19/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.025	0.10		µg/L	1	8/28/2017 11:26 AM
Barium	120	0.070	1.0		µg/L	1	8/28/2017 11:26 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:26 AM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 11:26 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:26 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-004

Client Sample ID: C-R27-S-Q317
Collection Date: 8/16/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 11:31 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:31 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:31 AM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 11:31 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:31 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-005

Client Sample ID: C-TAZ-D-Q317
Collection Date: 8/16/2017 8:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 11:48 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:48 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:48 AM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 11:48 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:48 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-006

Client Sample ID: MW-912-Q317
Collection Date: 8/16/2017 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 11:53 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:53 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:53 AM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 11:53 AM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 11:53 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-007

Client Sample ID: C-TAZ-S-Q317
Collection Date: 8/16/2017 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 11:59 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:59 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:59 AM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 11:59 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:59 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-008

Client Sample ID: R-63-Q317
Collection Date: 8/16/2017 10:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 12:04 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:04 PM
Manganese	3.8	0.056	0.50		µg/L	1	8/28/2017 12:04 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 12:04 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 12:04 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 12:21 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:21 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:21 PM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 12:21 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 12:21 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 12:26 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:26 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:26 PM
Molybdenum	4.3	0.039	0.50		µg/L	1	8/28/2017 12:26 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 12:26 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 12:32 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:32 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:32 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 12:32 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 12:32 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 12:37 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:37 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:37 PM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 12:37 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 12:37 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 01:03 PM
Barium	120	0.070	1.0		µg/L	1	8/28/2017 01:03 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:03 PM
Molybdenum	4.8	0.039	0.50		µg/L	1	8/28/2017 01:03 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 01:03 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63426**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **PBW**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	0.223	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63426**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **LCSW**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.569	0.10	10.00	0	95.7	85	115				
Barium	9.368	1.0	10.00	0	93.7	85	115				
Manganese	94.900	0.50	100.0	0	94.9	85	115				
Molybdenum	9.166	0.50	10.00	0	91.7	85	115				
Selenium	9.391	0.50	10.00	0	93.9	85	115				

Sample ID **N025493-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.321	0.10	10.00	2.150	91.7	75	125				
Barium	128.916	1.0	10.00	116.8	121	75	125				
Manganese	86.772	0.50	100.0	0	86.8	75	125				
Molybdenum	14.294	0.50	10.00	4.652	96.4	75	125				
Selenium	10.697	0.50	10.00	1.424	92.7	75	125				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N025493-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/19/2017** RunNo: **117521**
Client ID: **ZZZZZZ** Batch ID: **63426** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **8/28/2017** SeqNo: **2749034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.136	0.10	10.00	2.150	89.9	75	125	11.32	1.65	20	
Barium	128.364	1.0	10.00	116.8	115	75	125	128.9	0.429	20	
Manganese	86.798	0.50	100.0	0	86.8	75	125	86.77	0.0302	20	
Molybdenum	14.172	0.50	10.00	4.652	95.2	75	125	14.29	0.853	20	
Selenium	10.499	0.50	10.00	1.424	90.7	75	125	10.70	1.87	20	

Qualifiers:

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

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD; Geotracker; Labspec; Others ✓ Specify: RWQCB; Global ID:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Sample Receipt Condition (Y N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: Ice
Submitted By: Nava Tey	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Sample Temp: 2.4°C / 3.1°C
Title: sample tech			
Signature: Date: 8/16/17	Sampled By: Nava Tey	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - RMP	Signature: Date: 8/16/17		
Project Number: RC000753.0801			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020A ds) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020A ds) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020A ds) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate, H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-NR4-S-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~				
2	N025493 - 01	C-R22A-D-Q317	8/16/17	1110		X		X		X	X		X	X			X	X	E	9	P	BNS
3	- 02	C-R22A-S-Q317	8/16/17	1140		X		X		X	X		X	X			X	X	E	9	P	BNS
4	- 03	C-R27-D-Q317	8/16/17	1250		X		X		X	X		X	X			X	X	E	9	P	BNS
5	- 04	C-R27-S-Q317	8/16/17	1310		X		X		X	X		X	X			X	X	E	9	P	BNS
	- 05	C-TAZ-D-Q317	8/16/17	0815		X		X		X	X		X	X			X	X	E	9	P	BNS
7	- 06	MW-912-Q317	8/16/17	0855		X		X		X	X		X	X			X	X	E	9	P	BNS
8	- 07	C-TAZ-S-Q317	8/16/17	0845		X		X		X	X		X	X			X	X	E	9	P	BNS
9		~~R-19-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	~~9~~	P	BNS
10		~~R-28-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	~~9~~	P	BNS
11	- 08	R63-Q317	8/16/17	1040		X		X		X	X		X	X			X	X	E	9	P	BNS
12		~~RRB-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	~~9~~	P	BNS
13	- 09	SW1-Q317	8/16/17	1440		X		X					X	X					E	5	P	BNS
14	- 10	SW2-Q317	8/16/17	1500		X		X					X	X					E	5	P	BNS

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Nava Tey	8/16/17 1600	Pingalang	8/16/17 1600
Pingalang	8/16/17 1841	Pingalang	8/16/17 1841

Turn Around Time (TAT)

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

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

Special Instruction:

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

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		
Others/Specify:	B	(NH4)2SO4/NH4OH		

Container Type:

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tey		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 8/16/17	Sampled By: Nara Tey		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 8/16/17		
Project Number: RC000753.0801			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact		
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	0	
Global ID:		Regulatory		6. Method of Cooling:	ice	
		Specify State:		Sample Temp: ~~4.0~~ 3.2°C		

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 3x250 mL poly	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 3x500mL poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Br, Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025493 - 11	• C-BNS-Q317	8/16/17	1215		X		X		X	X		X	X			X	X	E	7/8	P	BNS
2		~~C-CON-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
3		~~C-CON-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
4	- 12	• C-I-3-D-Q317	8/16/17	0935		X		X		X	X		X	X			X	X	E	7/8	P	BNS
5	- 13	• MW-910-Q317	8/16/17	0945		X		X		X	X		X	X			X	X	E	7/8	P	BNS
6	- 14	• C-I-3-S-Q317	8/16/17	1005		X		X		X	X		X	X			X	X	E	7/8	P	BNS
7		~~C-MAR-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
8		~~C-MAR-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
9		~~C-NR1-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
10		~~C-NR1-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
11		~~C-NR3-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
12		~~C-NR3-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
13		~~MW-911-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
14		~~C-NR4-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tey	8/16/17 1600	pung Lang	8/16/17 1600
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
pung Lang	8/16/17 1841	pung Lang	8/16/17 1841
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

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

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

Special Instruction:

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 1 of 1

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

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#
Submitted By: Nara Tay	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:
Title: Sample Tech	Sampled By: Nara Tay	
Signature: Date: 8/16/17	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/16/17	
Project Name: PG&E Topock - RMP		
Project Number: RC000753.0801		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact		
4. Seal Present		
5. IR number		
6. Method of Cooling: ice		
Sample Temp: 3.2 C		
Courier:		
Tracking No.:		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
		~~MW-913-Q317~~				X		X		X	X		X	X			X	X	m	9	P	3NS
	N025493 - 15	AB1-Q317	8/16/17	1010			X												m	1	P	BN
	- 16	AB2-Q317	8/16/17	1355			X												m	1	P	BN
		~~AB3-Q317~~					X												E	1	P	BN
	- 17	R-28-Q317	8/16/17	1340		X		X		X	X		X	X			X	X	E	7	P	3NS

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tay	8/16/17 1600	Pongalang	8/16/17 1600
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Pongalang	8/16/17 1841	Pongalang	8/16/17 1841
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
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- [ ] D = 3 Workdays
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Special Instruction:

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8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
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Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	8/16/2017	Workorder:	N025493
Rep sample Temp (Deg C):	2.4/3.1/3.2	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: Samples for pH were past HT upo0n receipt.

Checklist Completed By: YR 8/29/2017

Reviewed By: 8/29/2017

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-001A	C-R22A-D-Q317	8/16/2017 11:10:00 AM	8/30/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-001B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-001C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-001D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-001E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-002A	C-R22A-S-Q317	8/16/2017 11:40:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-002B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-002C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-002D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-002D	C-R22A-S-Q317	8/16/2017 11:40:00 AM	8/30/2017	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-002E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-003A	C-R27-D-Q317	8/16/2017 12:50:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-003B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-003C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-003D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-003E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-004A	C-R27-S-Q317	8/16/2017 1:10:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-004B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-004B	C-R27-S-Q317	8/16/2017 1:10:00 PM	8/30/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-004C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-004D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-004E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-005A	C-TAZ-D-Q317	8/16/2017 8:15:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-005B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-005C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-005D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-005E	C-TAZ-D-Q317	8/16/2017 8:15:00 AM	8/30/2017	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-006A	MW-912-Q317	8/16/2017 8:55:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-006B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-006C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-006D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-006E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-007A	C-TAZ-S-Q317	8/16/2017 8:45:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-007B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-007C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-007C	C-TAZ-S-Q317	8/16/2017 8:45:00 AM	8/30/2017	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-007D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-007E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-008A	R-63-Q317	8/16/2017 10:40:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-008B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-008C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-008D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-008E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-009A	SW1-Q317	8/16/2017 2:40:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-009B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-009B	SW1-Q317	8/16/2017 2:40:00 PM	8/30/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-009C			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
N025493-010A	SW2-Q317	8/16/2017 3:00:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-010B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-010C			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
N025493-011A	C-BNS-Q317	8/16/2017 12:15:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-011B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-011C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-011D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-011E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-012A	C-I-3-D-Q317	8/16/2017 9:35:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-012B	C-I-3-D-Q317	8/16/2017 9:35:00 AM	8/30/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-012C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-012D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-012E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-013A	MW-910-Q317	8/16/2017 9:45:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-013B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-013C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-013D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-013D	MW-910-Q317	8/16/2017 9:45:00 AM	8/30/2017	Groundwater	SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-013E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-014A	C-I-3-S-Q317	8/16/2017 10:05:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-014B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-014C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-014D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-014E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-015A	AB1-Q317	8/16/2017 10:10:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-016A	AB2-Q317	8/16/2017 1:55:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-017A	R-28-Q317	8/16/2017 1:40:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-017B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-017B	R-28-Q317	8/16/2017 1:40:00 PM	8/30/2017	Groundwater	EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-017C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-017D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-017E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-018A	FOLDER	8/30/2017	8/30/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/30/2017		Folder	Folder	☐	☐	☐	LAB
			8/30/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - RMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N025493

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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August 31, 2017

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

TEL: (916) 786-3302
FAX:

Workorder No.: N025493

RE: PG&E Topock - RMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 16, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

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

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *31-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025493-001A	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001B	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001C	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001D	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-001E	C-R22A-D-Q317	Groundwater	8/16/2017 11:10:00 AM	8/16/2017	8/31/2017
N025493-002A	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002B	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002C	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002D	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-002E	C-R22A-S-Q317	Groundwater	8/16/2017 11:40:00 AM	8/16/2017	8/31/2017
N025493-003A	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003B	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003C	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003D	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-003E	C-R27-D-Q317	Groundwater	8/16/2017 12:50:00 PM	8/16/2017	8/31/2017
N025493-004A	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004B	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004C	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004D	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-004E	C-R27-S-Q317	Groundwater	8/16/2017 1:10:00 PM	8/16/2017	8/31/2017
N025493-005A	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005B	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005C	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005D	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-005E	C-TAZ-D-Q317	Groundwater	8/16/2017 8:15:00 AM	8/16/2017	8/31/2017
N025493-006A	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-006B	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-006C	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-006D	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025493-006E	MW-912-Q317	Groundwater	8/16/2017 8:55:00 AM	8/16/2017	8/31/2017
N025493-007A	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007B	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007C	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007D	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-007E	C-TAZ-S-Q317	Groundwater	8/16/2017 8:45:00 AM	8/16/2017	8/31/2017
N025493-008A	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008B	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008C	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008D	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-008E	R-63-Q317	Groundwater	8/16/2017 10:40:00 AM	8/16/2017	8/31/2017
N025493-009A	SW1-Q317	Groundwater	8/16/2017 2:40:00 PM	8/16/2017	8/31/2017
N025493-009B	SW1-Q317	Groundwater	8/16/2017 2:40:00 PM	8/16/2017	8/31/2017
N025493-009C	SW1-Q317	Groundwater	8/16/2017 2:40:00 PM	8/16/2017	8/31/2017
N025493-010A	SW2-Q317	Groundwater	8/16/2017 3:00:00 PM	8/16/2017	8/31/2017
N025493-010B	SW2-Q317	Groundwater	8/16/2017 3:00:00 PM	8/16/2017	8/31/2017
N025493-010C	SW2-Q317	Groundwater	8/16/2017 3:00:00 PM	8/16/2017	8/31/2017
N025493-011A	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011B	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011C	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011D	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-011E	C-BNS-Q317	Groundwater	8/16/2017 12:15:00 PM	8/16/2017	8/31/2017
N025493-012A	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012B	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012C	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012D	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-012E	C-I-3-D-Q317	Groundwater	8/16/2017 9:35:00 AM	8/16/2017	8/31/2017
N025493-013A	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-013B	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-013C	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025493
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025493-013D	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-013E	MW-910-Q317	Groundwater	8/16/2017 9:45:00 AM	8/16/2017	8/31/2017
N025493-014A	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014B	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014C	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014D	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-014E	C-I-3-S-Q317	Groundwater	8/16/2017 10:05:00 AM	8/16/2017	8/31/2017
N025493-015A	AB1-Q317	Groundwater	8/16/2017 10:10:00 AM	8/16/2017	8/31/2017
N025493-016A	AB2-Q317	Groundwater	8/16/2017 1:55:00 PM	8/16/2017	8/31/2017
N025493-017A	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017B	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017C	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017D	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017
N025493-017E	R-28-Q317	Groundwater	8/16/2017 1:40:00 PM	8/16/2017	8/31/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	990	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	990	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 2:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-010

Client Sample ID: SW2-Q317
Collection Date: 8/16/2017 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	990	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170817C**	QC Batch: **R117177**			PrepDate			Analyst: **LR**
Specific Conductance	980	0.10	0.10		umhos/cm	1	8/17/2017 11:05 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N025493-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **117177**
Client ID: **ZZZZZZ**	Batch ID: **R117177**	TestNo: **EPA 120.1**		Analysis Date: **8/17/2017**	SeqNo: **2735084**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	986.000	0.10						989.0	0.304	10	

Sample ID **N025493-011DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **117177**
Client ID: **ZZZZZZ**	Batch ID: **R117177**	TestNo: **EPA 120.1**		Analysis Date: **8/17/2017**	SeqNo: **2735096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	972.000	0.10						977.0	0.513	10	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-001

Client Sample ID: C-R22A-D-Q317
Collection Date: 8/16/2017 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-002

Client Sample ID: C-R22A-S-Q317
Collection Date: 8/16/2017 11:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-003

Client Sample ID: C-R27-D-Q317
Collection Date: 8/16/2017 12:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-004

Client Sample ID: C-R27-S-Q317
Collection Date: 8/16/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-005

Client Sample ID: C-TAZ-D-Q317
Collection Date: 8/16/2017 8:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	18	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 2:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-010

Client Sample ID: SW2-Q317
Collection Date: 8/16/2017 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	7.9	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-011

Client Sample ID: C-BNS-Q317
Collection Date: 8/16/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-012

Client Sample ID: C-I-3-D-Q317
Collection Date: 8/16/2017 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-014

Client Sample ID: C-I-3-S-Q317
Collection Date: 8/16/2017 10:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	20	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-017

Client Sample ID: R-28-Q317
Collection Date: 8/16/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170817B**	QC Batch: **R117176**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	8/17/2017 10:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	8/17/2017 10:00 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025493-001DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117176**
Client ID: **ZZZZZZ**	Batch ID: **R117176**	TestNo: **SM4500-H+B**		Analysis Date: **8/17/2017**	SeqNo: **2735067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.090	0.10						8.050	0.496	10	H
Temp. at time of pH Analysis	18.400	0.10						18.80	2.15	10	H

Sample ID **N025493-011DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117176**
Client ID: **ZZZZZZ**	Batch ID: **R117176**	TestNo: **SM4500-H+B**		Analysis Date: **8/17/2017**	SeqNo: **2735078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.040	0.10						8.040	0	10	H
Temp. at time of pH Analysis	18.900	0.10						19.00	0.528	10	H

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D**	QC Batch: **63368**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817D** QC Batch: **63368**					PrepDate **8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	16	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817E**	QC Batch: **63369**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817E**	QC Batch: **63369**				PrepDate	**8/17/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170817E** QC Batch: **63369**					PrepDate **8/17/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/17/2017 07:41 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-63368	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117178
Client ID:	LCSW	Batch ID:	63368	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735145

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	937.000	10	1000	0	93.7	80	120				

Sample ID	MB-63368	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117178
Client ID:	PBW	Batch ID:	63368	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735146

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N025493-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117178
Client ID:	ZZZZZZ	Batch ID:	63368	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-63369	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117179
Client ID:	LCSW	Batch ID:	63369	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735158

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	939.000	10	1000	0	93.9	80	120				

Sample ID	MB-63369	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117179
Client ID:	PBW	Batch ID:	63369	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735159

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N025493-013DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/17/2017	RunNo:	117179
Client ID:	ZZZZZZ	Batch ID:	63369	TestNo:	SM2540D			Analysis Date:	8/17/2017	SeqNo:	2735162

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 10:08 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 10:52 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 10:38 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:20 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 10:57 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:26 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 11:44 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:31 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 12:03 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:48 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 12:22 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:53 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 12:41 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 11:59 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 01:00 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:04 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 2:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 01:38 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 3:00:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 01:57 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:15 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 02:16 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:21 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 02:35 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:26 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 04:52 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63426**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:32 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 05:29 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 12:37 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	AB1-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 05:48 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	AB2-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:55:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A**	QC Batch: **R117235**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 06:07 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170817A** QC Batch: **R117235**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/17/2017 06:26 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63426**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:03 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R117235**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID:	**PBW**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737759**

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

Sample ID	**LCS-R117235**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID:	**LCSW**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.887	0.20	5.000	0	97.7	90	110				

Sample ID	**N025493-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID:	**ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.031	0.20	1.000	0.05520	97.6	90	110				

Sample ID	**N025493-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID:	**ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.038	0.20	1.000	0.05520	98.3	90	110	1.031	0.677	20	

Sample ID	**N025493-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID:	**ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.027	0.20	1.000	0.04600	98.0	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025493-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737767

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.036	0.20	1.000	0.04150	99.5	90	110				

Sample ID	N025493-003ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737768

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.043	0.20						0.04150	0	20	

Sample ID	N025493-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737772

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.057	0.20	1.000	0.05380	100	90	110				

Sample ID	N025493-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737774

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.064	0.20	1.000	0.04770	102	90	110				

Sample ID	N025493-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737776

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0.05190	101	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N025493-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **117235**
Client ID: **ZZZZZZ** Batch ID: **R117235** TestNo: **EPA 218.6** Analysis Date: **8/17/2017** SeqNo: **2737778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0.04860	102	90	110				

Sample ID **N025493-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **117235**
Client ID: **ZZZZZZ** Batch ID: **R117235** TestNo: **EPA 218.6** Analysis Date: **8/17/2017** SeqNo: **2737780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.061	0.20	1.000	0.05100	101	90	110				

Sample ID **N025493-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **117235**
Client ID: **ZZZZZZ** Batch ID: **R117235** TestNo: **EPA 218.6** Analysis Date: **8/17/2017** SeqNo: **2737784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.069	0.20	1.000	0.05260	102	90	110				

Sample ID **N025493-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **117235**
Client ID: **ZZZZZZ** Batch ID: **R117235** TestNo: **EPA 218.6** Analysis Date: **8/17/2017** SeqNo: **2737786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.002	0.20	1.000	0.05390	94.8	90	110				

Sample ID **N025493-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **117235**
Client ID: **ZZZZZZ** Batch ID: **R117235** TestNo: **EPA 218.6** Analysis Date: **8/17/2017** SeqNo: **2737788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0.07210	96.0	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025493-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737790

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.058	0.20	1.000	0.05620	100	90	110				

Sample ID	N025493-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737798

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0.06060	99.8	90	110				

Sample ID	N025493-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737802

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.066	0.20	1.000	0.05420	101	90	110				

Sample ID	N025493-015AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737804

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.026	0.20	1.000	0.03560	99.1	90	110				

Sample ID	N025493-016AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737806

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.009	0.20	1.000	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025493-017AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117235
Client ID:	ZZZZZZ	Batch ID:	R117235	TestNo:	EPA 218.6			Analysis Date:	8/17/2017	SeqNo:	2737808

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.039	0.20	1.000	0.04630	99.3	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63426	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	PBW	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748948

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

Sample ID	LCS-63426	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	LCSW	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748949

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.574	1.0	10.00	0	95.7	85	115				

Sample ID	N025493-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748953

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.558	1.0	10.00	0	85.6	75	125				

Sample ID	N025493-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748954

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.672	1.0	10.00	0	86.7	75	125	8.558	1.32	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170822J**	QC Batch: **R117361**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/22/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:50:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 8:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-63-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**			PrepDate			Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.42	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R117361	**MBLK**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **PBW**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742821**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R117361	**LCS**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **LCSW**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.495	0.050	0.5000	0	98.9	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-001EDUP	**DUP**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **ZZZZZZ**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.381	0.050						0.4075	6.80	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-001EMS	**MS**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **ZZZZZZ**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.822	0.050	0.5000	0.4075	82.9	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-001EMSD	**MSD**	**4500N03F_W**	**mg/L**		**117361**
Client ID: **ZZZZZZ**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.864	0.050	0.5000	0.4075	91.3	75	125	0.8218	5.03	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117445	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	PBW	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746243

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

Sample ID	LCS-R117445	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	LCSW	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746244

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101	85	115				

Sample ID	N025493-002EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746246

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.390	0.050						0.3978	1.98	20	

Sample ID	N025493-002EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746249

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.839	0.050	0.5000	0.3978	88.1	75	125				

Sample ID	N025493-002EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746250

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.844	0.050	0.5000	0.3978	89.2	75	125	0.8385	0.630	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-001

Client Sample ID: C-R22A-D-Q317
Collection Date: 8/16/2017 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:12 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	28	1.8	20		ug/L	1	8/29/2017 08:49 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 11:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 09:03 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	24	1.8	20		ug/L	1	8/29/2017 08:58 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-003

Client Sample ID: C-R27-D-Q317
Collection Date: 8/16/2017 12:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:39 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	47	1.8	20		ug/L	1	8/28/2017 09:51 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-004

Client Sample ID: C-R27-S-Q317
Collection Date: 8/16/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:44 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	45	1.8	20		ug/L	1	8/28/2017 09:56 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-005

Client Sample ID: C-TAZ-D-Q317
Collection Date: 8/16/2017 8:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/28/2017 11:57 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	21	1.8	20		ug/L	1	8/28/2017 10:09 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-006

Client Sample ID: MW-912-Q317
Collection Date: 8/16/2017 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:01 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	110	1.8	20		ug/L	1	8/28/2017 10:13 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-007

Client Sample ID: C-TAZ-S-Q317
Collection Date: 8/16/2017 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 09:12 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 09:07 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-008

Client Sample ID: R-63-Q317
Collection Date: 8/16/2017 10:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:10 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	100	1.8	20		ug/L	1	8/28/2017 10:22 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-011

Client Sample ID: C-BNS-Q317
Collection Date: 8/16/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	32	1.8	20		ug/L	1	8/29/2017 12:15 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	62	1.8	20		ug/L	1	8/28/2017 10:26 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-012

Client Sample ID: C-I-3-D-Q317
Collection Date: 8/16/2017 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:19 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	89	1.8	20		ug/L	1	8/28/2017 10:30 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-013

Client Sample ID: MW-910-Q317
Collection Date: 8/16/2017 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	34	1.8	20		ug/L	1	8/29/2017 12:24 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	120	1.8	20		ug/L	1	8/28/2017 10:35 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q317
Lab Order:	N025493	**Collection Date:**	8/16/2017 10:05:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025493-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:28 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	28	1.8	20		ug/L	1	8/28/2017 10:39 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-017

Client Sample ID: R-28-Q317
Collection Date: 8/16/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63440**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 12:33 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63439**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	93	1.8	20		ug/L	1	8/28/2017 10:43 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **MB-63440**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **PBW**	Batch ID: **63440**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID **LCS-63440**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **LCSW**	Batch ID: **63440**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	103.589	20	100.0	0	104	85	115				

Sample ID **N025493-001B-MS**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **63440**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.997	20	100.0	17.36	87.6	75	125				

Sample ID **N025493-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **63440**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	102.670	20	100.0	17.36	85.3	75	125	105.0	2.24	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	LCS-63439	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	LCSW	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749472

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	112.334	20	100.0	0	112	85	115				

Sample ID	N025493-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749476

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	141.118	20	100.0	28.11	113	75	125				

Sample ID	N025493-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749477

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	136.318	20	100.0	28.11	108	75	125	141.1	3.46	20	

Sample ID	MB-63439	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	PBW	Batch ID:	63439	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749492

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.926	20									

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-001

Client Sample ID: C-R22A-D-Q317
Collection Date: 8/16/2017 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 10:52 AM
Barium	120	0.070	1.0		µg/L	1	8/28/2017 10:52 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 10:52 AM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 10:52 AM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 10:52 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-002

Client Sample ID: C-R22A-S-Q317
Collection Date: 8/16/2017 11:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 11:20 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:20 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:20 AM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 11:20 AM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 11:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-003

Client Sample ID: C-R27-D-Q317
Collection Date: 8/16/2017 12:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.3	0.025	0.10		µg/L	1	8/28/2017 11:26 AM
Barium	120	0.070	1.0		µg/L	1	8/28/2017 11:26 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:26 AM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 11:26 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:26 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-004

Client Sample ID: C-R27-S-Q317
Collection Date: 8/16/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 11:31 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:31 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:31 AM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 11:31 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:31 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-005

Client Sample ID: C-TAZ-D-Q317
Collection Date: 8/16/2017 8:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 11:48 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:48 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:48 AM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 11:48 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:48 AM

Qualifiers:

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *31-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-006

Client Sample ID: MW-912-Q317
Collection Date: 8/16/2017 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 11:53 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:53 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:53 AM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 11:53 AM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 11:53 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-007

Client Sample ID: C-TAZ-S-Q317
Collection Date: 8/16/2017 8:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 11:59 AM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 11:59 AM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 11:59 AM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 11:59 AM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 11:59 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-008

Client Sample ID: R-63-Q317
Collection Date: 8/16/2017 10:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 12:04 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:04 PM
Manganese	3.8	0.056	0.50		µg/L	1	8/28/2017 12:04 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 12:04 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 12:04 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-011

Client Sample ID: C-BNS-Q317
Collection Date: 8/16/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 12:21 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:21 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:21 PM
Molybdenum	4.7	0.039	0.50		µg/L	1	8/28/2017 12:21 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 12:21 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-012

Client Sample ID: C-I-3-D-Q317
Collection Date: 8/16/2017 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 12:26 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:26 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:26 PM
Molybdenum	4.3	0.039	0.50		µg/L	1	8/28/2017 12:26 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 12:26 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-013

Client Sample ID: MW-910-Q317
Collection Date: 8/16/2017 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 12:32 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:32 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:32 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 12:32 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 12:32 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-014

Client Sample ID: C-I-3-S-Q317
Collection Date: 8/16/2017 10:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 12:37 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 12:37 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 12:37 PM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 12:37 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 12:37 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025493
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025493-017

Client Sample ID: R-28-Q317
Collection Date: 8/16/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63426**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 01:03 PM
Barium	120	0.070	1.0		µg/L	1	8/28/2017 01:03 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:03 PM
Molybdenum	4.8	0.039	0.50		µg/L	1	8/28/2017 01:03 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 01:03 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63426**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **PBW**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	0.223	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63426**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **LCSW**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.569	0.10	10.00	0	95.7	85	115				
Barium	9.368	1.0	10.00	0	93.7	85	115				
Manganese	94.900	0.50	100.0	0	94.9	85	115				
Molybdenum	9.166	0.50	10.00	0	91.7	85	115				
Selenium	9.391	0.50	10.00	0	93.9	85	115				

Sample ID **N025493-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.321	0.10	10.00	2.150	91.7	75	125				
Barium	128.916	1.0	10.00	116.8	121	75	125				
Manganese	86.772	0.50	100.0	0	86.8	75	125				
Molybdenum	14.294	0.50	10.00	4.652	96.4	75	125				
Selenium	10.697	0.50	10.00	1.424	92.7	75	125				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N025493-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117521
Client ID:	ZZZZZZ	Batch ID:	63426	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	8/28/2017	SeqNo:	2749034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.136	0.10	10.00	2.150	89.9	75	125	11.32	1.65	20	
Barium	128.364	1.0	10.00	116.8	115	75	125	128.9	0.429	20	
Manganese	86.798	0.50	100.0	0	86.8	75	125	86.77	0.0302	20	
Molybdenum	14.172	0.50	10.00	4.652	95.2	75	125	14.29	0.853	20	
Selenium	10.499	0.50	10.00	1.424	90.7	75	125	10.70	1.87	20	

Qualifiers:

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

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement / QA/QC / Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD; Geotracker; Labspec; Others ✓ Specify: RWQCB / RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Global ID:
Submitted By: Nava Tey	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Sample Temp: 2.4°C / 3.1°C
Title: sample tech			Courier:
Signature: Date: 8/16/17	Sampled By: Nava Tey	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Tracking No.:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 8/16/17		
Project Number: RC000753.0801			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020A ds) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020A ds) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020A ds) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate, H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-NR4-S-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	9	P	BNS	
2	N025493 - 01	C-R22A-D-Q317	8/16/17	1110		X		X		X	X		X	X			X	X	E	7~~9~~	P	BNS	
3	- 02	C-R22A-S-Q317	8/16/17	1140		X		X		X	X		X	X			X	X	E	7~~9~~	P	BNS	
4	- 03	C-R27-D-Q317	8/16/17	1250		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
5	- 04	C-R27-S-Q317	8/16/17	1310		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
	- 05	C-TAZ-D-Q317	8/16/17	0815		X		X		X	X		X	X			X	X	E	7~~5~~	P	BNS	
7	- 06	MW-912-Q317	8/16/17	0855		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
8	- 07	C-TAZ-S-Q317	8/16/17	0845		X		X		X	X		X	X			X	X	E	7~~5~~	P	BNS	
9		~~R-19-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	~~9~~	P	BNS	
10		~~R-28-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	~~9~~	P	BNS	
11	- 08	R63-Q317	8/16/17	1040		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
12		~~RRB-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~			~~X~~	~~X~~	E	~~9~~	P	BNS	
13	- 09	SW1-Q317	8/16/17	1440		X		X					X	X					E	5	P	BNS	
14	- 10	SW2-Q317	8/16/17	1500		X		X					X	X					E	5	P	BNS	

Relinquished by (Signature and Printed Name)	Date/Time	Relinquished by (Signature and Printed Name)	Date/Time
Nava Tey	8/16/17 1600	Pingalang	8/16/17 1600
Pingalang	8/16/17 1841	Pingalang	8/16/17 1841

Turn Around Time (TAT)

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

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

Special Instruction:

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tey		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact		
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	0	
Global ID:		Regulatory		6. Method of Cooling:	ice	
		Specify State:		Sample Temp: ~~4.2°C~~ 3.2°C		

Signature: Date: 8/16/17
I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Nara Tey
I attest to the validity and authenticity of this sample, I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for
Signature: Date: 8/16/17

Project Name: PG&E Topock - RMP
Project Number: RC000753.0801

Courier:
Tracking No.:

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	3x250 mL poly		3x500mL poly	3x500mL poly	3x500mL poly	500 mL poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
						Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B); HNO3 Fe	Anions (E300.0); Br, Cl, SO4	Specific Conductance (E120.1)	pH (SM4500HB)	TDS (SM2540C)	Alkalinity (Total, reported as CaCO3) (SM2320B)	TSS (SM2540)	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4					
1	N025493 - 11	• C-BNS-Q317	8/16/17	1215		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
2		~~C-CON-D-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
3		~~C-CON-S-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
4	- 12	• C-I-3-D-Q317	8/16/17	0935		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
5	- 13	• MW-910-Q317	8/16/17	0945		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
6	- 14	• C-I-3-S-Q317	8/16/17	1005		X		X		X	X		X	X			X	X	E	7~~8~~	P	BNS	
7		~~C-MAR-D-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
8		~~C-MAR-S-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
9		~~C-NR1-D-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
10		~~C-NR1-S-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
11		~~C-NR3-D-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
12		~~C-NR3-S-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
13		~~MW-911-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	
14		~~C-NR4-D-Q317~~				X		X		X	X		X	X			X	X	E	~~9~~	P	BNS	

Relinquished by (Signature and Printed Name)	Date/Time:	Relinquished by (Signature and Printed Name)	Date/Time:
Nara Tey	8/16/17 1600	pwg Lang	8/16/17 1600
pwg Lang	8/16/17 1841	pwg Lang	8/16/17 1841

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Date Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
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www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Sample Tech	Sampled By: Nara Tep		
Signature: Date: 8/16/17	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 8/16/17		
Project Name: PG&E Topock - RMP			
Project Number: RC000753.0801			

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact		
4. Seal Present		
5. IR number		
6. Method of Cooling:	1 ce	
Sample Temp:	3.2 C	

Courier:

Tracking No.:

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface |

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
		~~MW-913-Q317~~				X		X		X	X		X	X			X	X				
	N025493 - 15	• AB1-Q317	8/16/17	1010			X												m	9	P	BNS	
	- 16	• AB2-Q317	8/16/17	1355			X												m	1	P	BN	
		~~AB3-Q317~~					X												E	1	P	BN	
	- 17	• R-28-Q317	8/16/17	1340		X		X		X	X		X	X			X	X	E	7	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tep	8/16/17 1600	Pongalang	8/16/17 1600
Relinquished by (Signature and Printed Name): Pongalang	Date/Time: 8/16/17 1841	Relinquished by (Signature and Printed Name): Pongalang	Date/Time: 8/16/17 1841
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

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Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/16/2017	Workorder:	N025493
Rep sample Temp (Deg C):	2.4/3.1/3.2	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past HT upo0n receipt.

Checklist Completed By: YR 8/29/2017

Reviewed By: 8/29/2017

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-001A	C-R22A-D-Q317	8/16/2017 11:10:00 AM	8/30/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-001B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-001C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-001D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-001E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-002A	C-R22A-S-Q317	8/16/2017 11:40:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-002B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-002C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-002D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-002D	C-R22A-S-Q317	8/16/2017 11:40:00 AM	8/30/2017	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-002E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-003A	C-R27-D-Q317	8/16/2017 12:50:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-003B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-003C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-003D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-003E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-004A	C-R27-S-Q317	8/16/2017 1:10:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-004B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-004B	C-R27-S-Q317	8/16/2017 1:10:00 PM	8/30/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-004C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-004D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-004E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-005A	C-TAZ-D-Q317	8/16/2017 8:15:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-005B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-005C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-005D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-005E	C-TAZ-D-Q317	8/16/2017 8:15:00 AM	8/30/2017	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-006A	MW-912-Q317	8/16/2017 8:55:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-006B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-006C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-006D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-006E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-007A	C-TAZ-S-Q317	8/16/2017 8:45:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-007B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-007C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-007C	C-TAZ-S-Q317	8/16/2017 8:45:00 AM	8/30/2017	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-007D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-007E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-008A	R-63-Q317	8/16/2017 10:40:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-008B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-008C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-008D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-008E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-009A	SW1-Q317	8/16/2017 2:40:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-009B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-009B	SW1-Q317	8/16/2017 2:40:00 PM	8/30/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-009C			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
N025493-010A	SW2-Q317	8/16/2017 3:00:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-010B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-010C			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
N025493-011A	C-BNS-Q317	8/16/2017 12:15:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-011B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-011C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-011D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-011E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-012A	C-I-3-D-Q317	8/16/2017 9:35:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-012B	C-I-3-D-Q317	8/16/2017 9:35:00 AM	8/30/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-012C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-012D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-012E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-013A	MW-910-Q317	8/16/2017 9:45:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-013B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-013C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-013D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-013D	MW-910-Q317	8/16/2017 9:45:00 AM	8/30/2017	Groundwater	SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-013E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-014A	C-I-3-S-Q317	8/16/2017 10:05:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-014B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-014C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-014D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-014E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-015A	AB1-Q317	8/16/2017 10:10:00 AM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-016A	AB2-Q317	8/16/2017 1:55:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-017A	R-28-Q317	8/16/2017 1:40:00 PM	8/30/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025493-017B			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-Aug-17

WorkOrder: N025493

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/16/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025493-017B	R-28-Q317	8/16/2017 1:40:00 PM	8/30/2017	Groundwater	EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/30/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025493-017C			8/30/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/30/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025493-017D			8/30/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/30/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/30/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/30/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025493-017E			8/30/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025493-018A	FOLDER	8/30/2017	8/30/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/30/2017		Folder	Folder	☐	☐	☐	LAB
			8/30/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N025493**

NAME	TEST METHOD
Claire Ignacio	EPA 6010B, EPA 6020
Ryan Balilu	SM 4500-NO3F
Ria Abes	EPA 218.6
Lilia Ramit	SM 2540D, SM 4500-H+B, EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117177 **Analyst:** LSR

ASSET #: N025493 **Date Analyzed:** 8/17/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/23/2017

2nd Level Reviewer: 8/31/2017 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 8/16/17 1040
Analyst: LBR

	Standard	Std ID	Reading	Comments
	9.25 µS/cm	CIW-170620B	9.63 µS/cm @23.3°C	% Rec: (90-110%)
	1411	170329B	1411 @23.8°C	
	10003	170329A	9970 @24.0°C	
	99582	170329C	9950 @24.0°C	

	Sample ID	Matrix	Reading	Comments
1	ND25026-009A	H2O	786 µS/cm @23.8°C	
2	9A DUP		791 @23.5°C	
3	ND25175-6A		385 @23.5°C	
4	6A DUP		387 @23.3°C	
5				
6				
7				
8	1413 µS/cm	CIW-170125F	1460 µS/cm @23.5°C	
9	10000	170125E	9940 @23.5°C	
10	9976	170615H	9880 @23.5°C	
Dup	99899	170403A	99900 @23.5°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 8/17/17 1105
Analyst: LBR

	Standard	Std ID	Reading	Comments
	9.25 µS/cm	CIW-170620B	9.42 µS/cm @ 22.9°C	% Rec: (90-110%)
	1411	170329B	1410 @22.9°C	
	10003	170329A	10010 @22.9°C	
	99582	170329C	100200 @22.8°C	

	Sample ID	Matrix	Reading	Comments
1	ND25493-10D	H2O	989 @22.0°C	
2	1D DUP		998 @21.8°C	1413 = 1474 @ 22.7°C
3	2D		985 @22.1°C	= CIW 170125F
4	3D		981 @22.1°C	10,000 = 10060 @22.9°C
5	4D		979 @22.2°C	= CIW 170125E
6	5D		977 @22.2°C	
7	6D		983 @22.1°C	
8	7D		984 @22.0°C	
9	8D	972	987 @22.1°C	WR
10	9C		1016 @21.7°C	
Dup	10C		1010 @22.2°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

Date: 11/7/17 1105 cont

Analyst: LRR

Standard	Std ID	Reading	Comments
925 µS/cm	CAW-170620B	942 µS/cm @ 22.9°C	% Rec: (90-110%)
1411	170329B	1410 @ 22.9°C	
10000	170329A	10010 @ 22.9°C	
99582	170329C	100200 @ 22.8°C	

	Sample ID	Matrix	Reading	Comments
1	N025493-001D	H2O	977 @ 22.5°C	
2	11D DUP		972 @ 22.3°C	
3	12D		989 @ 22.0°C	
4	13D		984 @ 22.2°C	
5	14D		982 @ 22.4°C	
6	17D		953 @ 22.3°C	
7				
8				Julia Ramit 8/23/2017
9	14B µS/cm	CAW-170725F	1473 @ 22.9°C	
10	10000	170726E	10130 @ 23.2°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 8/15/17 1445

Analyst: LRR

Standard	Std ID	Reading	Comments
9.25 µS/cm	CAW-170620B	9.51 µS/cm @ 25.3°C	% Rec: (90-110%)
1411	170329B	1420 @ 25.3°C	
~~10000~~ 9976	~~170329~~ 170615H	9950 @ 24.4°C	
99800	170329C	99400 @ 25.8°C	

	Sample ID	Matrix	Reading	Comments
1	N025803-001D	H2O	962 @ 25.8°C	
2	1DDUP		967 @ 25.3°C	
3	2D		965 @ 25.1°C	1413 - CAW-170725F
4	4D		953 @ 25.0°C	= 1424 @ 25.3°C
5	5D		973 @ 24.8°C	10,000 - CAW-170726E
6	6D		967 @ 24.7°C	= 10280 @ 25.3°C
7	7D		965 @ 24.8°C	
8	8D		954 @ 24.7°C	
9	9D		946 @ 24.6°C	
10	10D		947 @ 24.5°C	
Dup	11D		954 @ 24.5°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117176 **Instrument ID:** pH meter

ASSET #: N025493 **Analyst:** LSR

Date Analyzed: 17-Aug

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?	X					
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 8/23/2017

2nd Level Reviewer Mary 8/31/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 8/17/17 1000

Analyst: KSR

Standard	Std ID	pH	Comments
Buffer 7	CIW-170125C	7.07 @ 21.2°C	SLOPE: 98.6%
Buffer 4	170125B	4.02 @ 21.1°C	
Buffer 10	170331A	10.04 @ 21.1°C	

	Sample ID	Matrix	pH	Comments
1	ND25493-001D	H2O	8.05 @ 18.8°C	
2	1D DUP		8.09 @ 18.4°C	
3	2D		8.08 @ 18.8°C	
4	3D		8.08 @ 18.9°C	
5	4D		8.08 @ 19.1°C	
6	5D		8.12 @ 18.6°C	
7	6D		7.99 @ 19.2°C	
8	7D		8.12 @ 19.5°C	
9	8D		7.98 @ 18.0°C	
10	9C		7.98 @ 20.2°C	
Dup	10C		7.97 @ 20.4°C	Accept: 10% water, 20% soil
	Buffer 7, 4, 10	CIW-170510A	6.99 @ 21.6°C	Accept: +/-0.1 pH units from expected value

(Circle one)

Date:

Analyst:

Standard	Std ID	pH	Comments
Buffer 7			
Buffer 4	CONT		
Buffer 10			

	Sample ID	Matrix	pH	Comments
1	ND25493-011D	H2O	8.04 @ 19.0°C	
2	11D DUP		8.04 @ 18.9°C	
3	12D		8.07 @ 19.5°C	
4	13D		8.11 @ 19.8°C	
5	14D		8.12 @ 19.9°C	
6	15D		8.20 @ 19.3°C	
7				
8				
9				
10			Julia Ramit	8/23/2017
Dup				Accept: 10% water, 20% soil
	Buffer 7, 4, 10	CIW-170510A	6.98 @ 21.8°C	Accept: +/-0.1 pH units from expected value

(Circle one)

Logbook #11

SM 2540D

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63368/63369 **Analyst:** LSR

ASSET #: N025493 **Date Analyzed:** 8/17/2017

Method: EPA 160.2

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/23/2017

2nd Level Reviewer: 8/31/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540D
TEST NAME: Total Non-Filterable Residue
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N025493-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.4035- 1.4031) *1000000}{100}$$

= 4 mg/L

Since reporting limit is 10 mg/L, therefore:

TSS = ND

Sitia Ramit 8/23/2017

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/17/2017 7:41:44 A**
Prep End Date: **8/17/2017 1:30:00 P**

Reviewed/ Date: Nancy 8/31/2017

Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63368** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit** Prep Factor Units **mL / mL** Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63368	Water		100	☐	0	0	100	1.000		
MB-63368	Water		100	☐	0	0	100	1.000		
N025493-001D	Groundwater		100	☐	0	0	100	1.000		
N025493-001D-DU	Groundwater		100	☐	0	0	100	1.000		
N025493-002D	Groundwater		100	☐	0	0	100	1.000		
N025493-003D	Groundwater		100	☐	0	0	100	1.000		
N025493-004D	Groundwater		100	☐	0	0	100	1.000		
N025493-005D	Groundwater		100	☐	0	0	100	1.000		
N025493-006D	Groundwater		100	☐	0	0	100	1.000		
N025493-007D	Groundwater		100	☐	0	0	100	1.000		
N025493-008D	Groundwater		100	☐	0	0	100	1.000		
N025493-011D	Groundwater		100	☐	0	0	100	1.000		
N025493-012D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9131	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170731A	1000 ppm talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/17/2017 7:41:44 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63368** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit** Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63368	Water	pHST170731L	100	☐	0	0	100	1.000		
MB-63368	Water		100	☐	0	0	100	1.000		
N025493-001D	Groundwater		100	☐	0	0	100	1.000		
N025493-001D-DU	Groundwater		100	☐	0	0	100	1.000		
N025493-002D	Groundwater		100	☐	0	0	100	1.000		
N025493-003D	Groundwater		100	☐	0	0	100	1.000		
N025493-004D	Groundwater		100	☐	0	0	100	1.000		
N025493-005D	Groundwater		100	☐	0	0	100	1.000		
N025493-006D	Groundwater		100	☐	0	0	100	1.000		
N025493-007D	Groundwater		100	☐	0	0	100	1.000		
N025493-008D	Groundwater		100	☐	0	0	100	1.000		
N025493-011D	Groundwater		100	☐	0	0	100	1.000		
N025493-012D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9131

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/17/2017 7:41:47 A**
Prep End Date: **8/17/2017 1:30:00 P**

Reviewed/ Date: 8/31/2017
Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63369** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63369	Water		100	☐	0	0	100	1.000		
MB-63369	Water		100	☐	0	0	100	1.000		
N025488-001B	Groundwater		100	☐	0	0	100	1.000		
N025493-013D	Groundwater		100	☐	0	0	100	1.000		
N025493-013D-DU	Groundwater		100	☐	0	0	100	1.000		
N025493-014D	Groundwater		100	☐	0	0	100	1.000		
N025493-017D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9131	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170731A	1000 ppm talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/17/2017 7:41:47 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63369** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63369	Water	16:37 1707231A	100	☐	0	0	100	1.000		
MB-63369	Water		100	☐	0	0	100	1.000		
N025488-001B	Groundwater		100	☐	0	0	100	1.000		
N025493-013D	Groundwater		100	☐	0	0	100	1.000		
N025493-013D-DU	Groundwater		100	☐	0	0	100	1.000		
N025493-014D	Groundwater		100	☐	0	0	100	1.000		
N025493-017D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9131

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST (TSS) TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8/17/17 741	MB 63368	100	1.4111 1.4110	1.4110 1.4109	
LCS	LCS 63368	100	1.4208 1.4209	1.5144 1.5146	
MS	NO 25493-0010	100	1.4032 1.4031	1.4035 1.4035	
DI	ID DUP	100	1.4153 1.4155	1.4160 1.4159	
2	2D	100	1.4110 1.4110	1.4115 1.4115	
3	3D	100	1.4165 1.4166	1.4170 1.4168	
4	4D	100	1.4061 1.4060	1.4063 1.4062	
5	5D	100	1.4111 1.4111	1.4118 1.4119	
6	6D	100	1.4109 1.4109	1.4110 1.4112	
7	7D	100	1.4169 1.4167	1.4170 1.4169	

Julia Ramit 8/23/2017

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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00
ing Clients with Passion and Professionalism"

SOLIDS RAW DATA

TEST (TSS) TDS/TS

	Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8	8/17/17	NO25493-008D	100	1.4226 1.4225	1.4226 1.4228	
9		11D	100	1.4196 1.4196	1.4197 1.4199	
10		17D	100	1.4139 1.4136	1.4151 1.4152	
41		MB 633C9	100	1.4096 1.4097	1.4097 1.4095	
K		LCS 63369	100	1.4192 1.4192	1.5130 1.5131	
11		NO25488-001B	100	1.4143 1.4144	1.4147 1.4146	
D2		NO25493-013D	100	1.4147 1.4145	1.4154 1.4153	
12		13D DUP	100	1.4193 1.4192	1.4201 1.4200	
13		14D	100	1.4209 1.4208	1.4210 1.4209	
14		17D	100	1.4196 1.4195	1.4201 1.4201	

Julia & Ramit 8/23/2017

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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 267 | NV Cert
ORELAP/NELAP Cert

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/17/2017							
MB-63368	100	1.4110	1.4109	-1.0000	1.00	-1	MBLK
LCS-63368	100	1.4209	1.5146	937.0000	1.00	937	LCS
N025493-001D	100	1.4031	1.4035	4.0000	1.00	4	SAMP
N025493-001DDUP	100	1.4155	1.4159	4.0000	1.00	4	DUP
N025493-002D	100	1.411	1.4115	5.0000	1.00	5	SAMP
N025493-003D	100	1.4166	1.4168	2.0000	1.00	2	SAMP
N025493-004D	100	1.406	1.4062	2.0000	1.00	2	SAMP
N025493-005D	100	1.4111	1.4119	8.0000	1.00	8	SAMP
N025493-006D	100	1.4109	1.4112	3.0000	1.00	3	SAMP
N025493-007D	100	1.4167	1.4169	2.0000	1.00	2	SAMP
N025493-008D	100	1.4225	1.4228	3.0000	1.00	3	SAMP
N025493-011D	100	1.4196	1.4199	3.0000	1.00	3	SAMP
N025493-012D	100	1.4136	1.4152	16.0000	1.00	16	SAMP

Silvia Ramit 8/23/2017

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/17/2017							
MB-63369	100	1.4097	1.4095	-2.0000	1.00	-2	MBLK
LCS-63369	100	1.4192	1.5131	939.0000	1.00	939	LCS
N025488-001B	100	1.4144	1.4146	2.0000	1.00	2	SAMP
N025493-013D	100	1.4145	1.4153	8.0000	1.00	8	SAMP
N025493-013DDUP	100	1.4192	1.42	8.0000	1.00	8	DUP
N025493-014D	100	1.4208	1.4209	1.0000	1.00	1	SAMP
N025493-017D	100	1.4195	1.4201	6.0000	1.00	6	SAMP

Silvia Ramit 8/23/2017

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R117235
ASSET #: N025493

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 8/17/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 8/22/2017

2nd Level Reviewer 8/30/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N025493-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0552 * 1$$

$$Cr^{+6}, \mu g/L = 0.06$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

rba 8/22/2017

ANALYSIS RUN LOG

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	08/02/17 1:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/02/17 1:49 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	08/02/17 1:58 PM	Reported
13	MB-R116844	MBLK	1	Hexavalent Chromium	08/02/17 2:08 PM	Reported
14	LCS-R116844	LCS	1	Hexavalent Chromium	08/02/17 2:17 PM	Reported
15	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 2:28 PM	Reported
16	N025284-001BMS	MS	100	Hexavalent Chromium	08/02/17 2:39 PM	Reported
17	N025284-001BMSD	MSD	100	Hexavalent Chromium	08/02/17 2:48 PM	Reported
18	N025284-002C	SAMP	1	Hexavalent Chromium	08/02/17 2:57 PM	Reported
19	N025284-002CMS	MS	1	Hexavalent Chromium	08/02/17 3:07 PM	Reported
20	N025254-009A	SAMP	1	Hexavalent Chromium	08/02/17 3:16 PM	Not Reported
21	N025254-010A	SAMP	1	Hexavalent Chromium	08/02/17 3:26 PM	Reported
22	N025284-002C	SAMP	5	Hexavalent Chromium	08/02/17 3:35 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	08/02/17 3:45 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	08/02/17 3:54 PM	Reported
25	N025284-002CMS	MS	5	Hexavalent Chromium	08/02/17 4:04 PM	Reported
26	N025254-001A	SAMP	1	Hexavalent Chromium	08/02/17 4:13 PM	Reported
27	N025254-002A	SAMP	5	Hexavalent Chromium	08/02/17 4:23 PM	Not Reported
28	N025254-003A	SAMP	50	Hexavalent Chromium	08/02/17 4:32 PM	Reported
29	N025254-004A	SAMP	1	Hexavalent Chromium	08/02/17 4:42 PM	Reported
30	N025254-005A	SAMP	1	Hexavalent Chromium	08/02/17 4:51 PM	Reported
31	N025254-006A	SAMP	1	Hexavalent Chromium	08/02/17 5:00 PM	Reported
32	N025254-007A	SAMP	200	Hexavalent Chromium	08/02/17 5:10 PM	Reported
33	N025254-008A	SAMP	1	Hexavalent Chromium	08/02/17 5:19 PM	Reported
34	N025254-011A	SAMP	1	Hexavalent Chromium	08/02/17 5:29 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	08/02/17 5:38 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	08/02/17 5:48 PM	Reported
37	N025254-012A	SAMP	1	Hexavalent Chromium	08/02/17 5:57 PM	Reported
38	N025254-013A	SAMP	1	Hexavalent Chromium	08/02/17 6:07 PM	Reported
39	N025254-014A	SAMP	5	Hexavalent Chromium	08/02/17 6:16 PM	Not Reported
40	N025254-015A	SAMP	1	Hexavalent Chromium	08/02/17 6:26 PM	Reported
41	N025254-016A	SAMP	1	Hexavalent Chromium	08/02/17 6:35 PM	Reported
42	N025254-017A	SAMP	5	Hexavalent Chromium	08/02/17 6:45 PM	Reported

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025254-018A	SAMP	5	Hexavalent Chromium	08/02/17 6:54 PM	Reported
44	N025254-009A	SAMP	10	Hexavalent Chromium	08/02/17 7:04 PM	Reported
45	N025254-009ADUP	DUP	10	Hexavalent Chromium	08/02/17 7:13 PM	Reported
46	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 7:22 PM	Not Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	08/02/17 7:32 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	08/02/17 7:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170802A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Aug/17 20:12:12**
No. of Injections:	**51**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		08/02/2017 13:37	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		08/02/2017 13:49	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		08/02/2017 13:58	Finished	ICB R170724A
13	MB-H2O,MBLK,1	14	1000	Unknown		08/02/2017 14:08	Finished	MB R170724A
14	LCS-H2O,LCS,1	15	1000	Unknown		08/02/2017 14:17	Finished	LCS, IWST-170622D
15	N025284-001B,SAMF	1	1000	Unknown		08/02/2017 14:28	Finished	SAMP,0.1> 10mL
16	N025284-001BMS,MS	2	1000	Unknown		08/02/2017 14:39	Finished	MS (5ppb), IWST-170622D,0.1
17	N025284-001BMSD,M	3	1000	Unknown		08/02/2017 14:48	Finished	MSD (5ppb), IWST-170622D,0
18	N025284-002C,SAMF	4	1000	Unknown		08/02/2017 14:57	Finished	SAMP, 10mL
19	N025284-002CMS,MS	5	1000	Unknown		08/02/2017 15:07	Finished	MS (1ppb), IWST-170622D,10
20	N025254-009A,SAMF	6	1000	Unknown		08/02/2017 15:16	Finished	SAMP, 10mL
21	N025254-010A,SAMF	7	1000	Unknown		08/02/2017 15:26	Finished	SAMP, 10mL
22	N025284-002C,SAMF	8	1000	Unknown		08/02/2017 15:35	Finished	SAMP,2> 10mL
23	CCV-1,CCV1,1,	9	1000	Unknown		08/02/2017 15:45	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	10	1000	Unknown		08/02/2017 15:54	Finished	CCB R170724A
25	N025284-002CMS,MS	11	1000	Unknown		08/02/2017 16:04	Finished	SAMP, 2>10mL
26	N025254-001A,SAMF	12	1000	Unknown		08/02/2017 16:13	Finished	SAMP, 10mL
27	N025254-002A,SAMF	13	1000	Unknown		08/02/2017 16:23	Finished	SAMP, 2>10mL
28	N025254-003A,SAMF	14	1000	Unknown		08/02/2017 16:32	Finished	SAMP, 0.2>10mL
29	N025254-004A,SAMF	15	1000	Unknown		08/02/2017 16:42	Finished	SAMP, 10mL
30	N025254-005A,SAMF	16	1000	Unknown		08/02/2017 16:51	Finished	SAMP, 10mL
31	N025254-006A,SAMF	17	1000	Unknown		08/02/2017 17:00	Finished	SAMP, 10mL
32	N025254-007A,SAMF	18	1000	Unknown		08/02/2017 17:10	Finished	SAMP, 0.05>10mL
33	N025254-008A,SAMF	19	1000	Unknown		08/02/2017 17:19	Finished	SAMP, 10mL
34	N025254-011A,SAMF	20	1000	Unknown		08/02/2017 17:29	Finished	DUP, 10mL
35	CCV-2,CCV,1,	21	1000	Unknown		08/02/2017 17:38	Finished	CCV @5ppb, IWST-170622D
36	CCB-2,CCB,1,	22	1000	Unknown		08/02/2017 17:48	Finished	CCB R170724A
37	N025254-012A,SAMF	23	1000	Unknown		08/02/2017 17:57	Finished	SAMP, 10mL
38	N025254-013A,SAMF	24	1000	Unknown		08/02/2017 18:07	Finished	SAMP, 10mL
39	N025254-014A,SAMF	25	1000	Unknown		08/02/2017 18:16	Finished	SAMP, 2>10mL
40	N025254-015A,SAMF	26	1000	Unknown		08/02/2017 18:26	Finished	SAMP, 10mL
41	N025254-016A,SAMF	27	1000	Unknown		08/02/2017 18:35	Finished	SAMP, 10mL
42	N025254-017A,SAMF	28	1000	Unknown		08/02/2017 18:45	Finished	SAMP,2> 10mL
43	N025254-018A,SAMF	29	1000	Unknown		08/02/2017 18:54	Finished	SAMP,2> 10mL
44	N025254-009A,SAMF	30	1000	Unknown		08/02/2017 19:04	Finished	SAMP, 1>10mL
45	N025254-009ADUP,D	31	1000	Unknown		08/02/2017 19:13	Finished	DUP, 1>10mL
46	N025284-001B,SAMF	32	1000	Unknown		08/02/2017 19:22	Finished	SAMP,0.1> 10mL
47	CCV-3,CCV1,1,	33	1000	Unknown		08/02/2017 19:32	Finished	CCV @10ppb, IWST-170622C
48	CCB-3,CCB,1,	34	1000	Unknown		08/02/2017 19:41	Finished	CCB R170724A
49	SHUTDOWN	35	1000	Unknown		08/02/2017 19:51	Finished	
50	Eluent: R170801A	36	1000	Unknown		n.a.	Finished	Eluent
51	PCR: R170801B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170817A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/17/17 8:47 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/17/17 8:58 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/17/17 9:07 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/17/17 9:16 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/17/17 9:26 AM	Reported
15	MB-R117235	MBLK	1	Hexavalent Chromium	08/17/17 9:35 AM	Reported
16	LCS-R117235	LCS	1	Hexavalent Chromium	08/17/17 9:47 AM	Reported
17	N025493-001A	SAMP	1	Hexavalent Chromium	08/17/17 10:08 AM	Reported
18	N025493-001AMS	MS	1	Hexavalent Chromium	08/17/17 10:19 AM	Reported
19	N025493-001AMSD	MSD	1	Hexavalent Chromium	08/17/17 10:29 AM	Reported
20	N025493-002A	SAMP	1	Hexavalent Chromium	08/17/17 10:38 AM	Reported
21	N025493-002AMS	MS	1	Hexavalent Chromium	08/17/17 10:48 AM	Reported
22	N025493-003A	SAMP	1	Hexavalent Chromium	08/17/17 10:57 AM	Reported
23	N025493-003AMS	MS	1	Hexavalent Chromium	08/17/17 11:07 AM	Reported
24	N025493-003ADUP	DUP	1	Hexavalent Chromium	08/17/17 11:16 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	08/17/17 11:25 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	08/17/17 11:35 AM	Reported
27	N025493-004A	SAMP	1	Hexavalent Chromium	08/17/17 11:44 AM	Reported
28	N025493-004AMS	MS	1	Hexavalent Chromium	08/17/17 11:54 AM	Reported
29	N025493-005A	SAMP	1	Hexavalent Chromium	08/17/17 12:03 PM	Reported
30	N025493-005AMS	MS	1	Hexavalent Chromium	08/17/17 12:13 PM	Reported
31	N025493-006A	SAMP	1	Hexavalent Chromium	08/17/17 12:22 PM	Reported
32	N025493-006AMS	MS	1	Hexavalent Chromium	08/17/17 12:32 PM	Reported
33	N025493-007A	SAMP	1	Hexavalent Chromium	08/17/17 12:41 PM	Reported
34	N025493-007AMS	MS	1	Hexavalent Chromium	08/17/17 12:51 PM	Reported
35	N025493-008A	SAMP	1	Hexavalent Chromium	08/17/17 1:00 PM	Reported
36	N025493-008AMS	MS	1	Hexavalent Chromium	08/17/17 1:10 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	08/17/17 1:19 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	08/17/17 1:28 PM	Reported
39	N025493-009A	SAMP	1	Hexavalent Chromium	08/17/17 1:38 PM	Reported
40	N025493-009AMS	MS	1	Hexavalent Chromium	08/17/17 1:47 PM	Reported
41	N025493-010A	SAMP	1	Hexavalent Chromium	08/17/17 1:57 PM	Reported
42	N025493-010AMS	MS	1	Hexavalent Chromium	08/17/17 2:06 PM	Reported

INJECTION LOG: 170817A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025493-011A	SAMP	1	Hexavalent Chromium	08/17/17 2:16 PM	Reported
44	N025493-011AMS	MS	1	Hexavalent Chromium	08/17/17 2:25 PM	Reported
45	N025493-012A	SAMP	1	Hexavalent Chromium	08/17/17 2:35 PM	Reported
46	N025493-012AMS	MS	1	Hexavalent Chromium	08/17/17 2:44 PM	Reported
47	N025026-001A	SAMP	10	Hexavalent Chromium	08/17/17 2:54 PM	Not Reported
48	N025175-019A	SAMP	100	Hexavalent Chromium	08/17/17 3:03 PM	Not Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	08/17/17 3:12 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	08/17/17 3:22 PM	Reported
51	N022631-001A	SAMP	5	Hexavalent Chromium	08/17/17 3:31 PM	Not Reported
52	N022736-019A	SAMP	100	Hexavalent Chromium	08/17/17 3:40 PM	Not Reported
53	N025026-001AREP	DUP	10	Hexavalent Chromium	08/17/17 3:53 PM	Not Reported
54	N025026-001A	SAMP	5	Hexavalent Chromium	08/17/17 4:04 PM	Reported
55	N025026-001AREP	DUP	5	Hexavalent Chromium	08/17/17 4:14 PM	~~Not~~ Reported
56	N025175-019AREP	DUP	100	Hexavalent Chromium	08/17/17 4:23 PM	Not Reported
57	N025175-019A	SAMP	50	Hexavalent Chromium	08/17/17 4:33 PM	Reported
58	N025175-019AREP	DUP	50	Hexavalent Chromium	08/17/17 4:42 PM	Reported
59	N025493-013A	SAMP	1	Hexavalent Chromium	08/17/17 4:52 PM	Reported
60	N025493-013AMS	MS	1	Hexavalent Chromium	08/17/17 5:01 PM	Reported
61	CCV-5	CCV	1	Hexavalent Chromium	08/17/17 5:11 PM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	08/17/17 5:20 PM	Reported
63	N025493-014A	SAMP	1	Hexavalent Chromium	08/17/17 5:29 PM	Reported
64	N025493-014AMS	MS	1	Hexavalent Chromium	08/17/17 5:39 PM	Reported
65	N025493-015A	SAMP	1	Hexavalent Chromium	08/17/17 5:48 PM	Reported
66	N025493-015AMS	MS	1	Hexavalent Chromium	08/17/17 5:58 PM	Reported
67	N025493-016A	SAMP	1	Hexavalent Chromium	08/17/17 6:07 PM	Reported
68	N025493-016AMS	MS	1	Hexavalent Chromium	08/17/17 6:17 PM	Reported
69	N025493-017A	SAMP	1	Hexavalent Chromium	08/17/17 6:26 PM	Reported
70	N025493-017AMS	MS	1	Hexavalent Chromium	08/17/17 6:36 PM	Reported
71	N025396-009A	SAMP	1	Hexavalent Chromium	08/17/17 6:45 PM	Not Reported
72	N025396-009AMS	MS	1	Hexavalent Chromium	08/17/17 6:55 PM	Not Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	08/17/17 7:04 PM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	08/17/17 7:14 PM	Reported

rba 8/22/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170817A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**18/Aug/17 10:14:31**
No. of Injections:	**77**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/17/2017 08:47	Finished	
11	BLANK	2	1000	Unknown		08/17/2017 08:58	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/17/2017 09:07	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/17/2017 09:16	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/17/2017 09:26	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/17/2017 09:35	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/17/2017 09:47	Finished	LCS, IWST-170622D
17	N025493-001A,SAMF	9	1000	Unknown		08/17/2017 10:08	Finished	SAMP,10mL
18	N025493-001AMS,MS	10	1000	Unknown		08/17/2017 10:19	Finished	MS (1ppb), IWST-170622D,10
19	N025493-001AMSD,M	11	1000	Unknown		08/17/2017 10:29	Finished	MSD (1ppb), IWST-170622D,1
20	N025493-002A,SAMF	12	1000	Unknown		08/17/2017 10:38	Finished	SAMP,10mL
21	N025493-002AMS,MS	13	1000	Unknown		08/17/2017 10:48	Finished	MS (1ppb), IWST-170622D,10
22	N025493-003A,SAMF	14	1000	Unknown		08/17/2017 10:57	Finished	SAMP,10mL
23	N025493-003AMS,MS	15	1000	Unknown		08/17/2017 11:07	Finished	MS (1ppb), IWST-170622D,10
24	N0254793-003ADUP,	16	1000	Unknown		08/17/2017 11:16	Finished	DUP,10mL
25	CCV-2,CCV1,1,	17	1000	Unknown		08/17/2017 11:25	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	18	1000	Unknown		08/17/2017 11:35	Finished	CCB R170724A
27	N025493-004A,SAMF	19	1000	Unknown		08/17/2017 11:44	Finished	SAMP,10mL
28	N025493-004AMS,MS	20	1000	Unknown		08/17/2017 11:54	Finished	MS (1ppb), IWST-170622D,10
29	N025493-005A,SAMF	21	1000	Unknown		08/17/2017 12:03	Finished	SAMP,10mL
30	N025493-005AMS,MS	22	1000	Unknown		08/17/2017 12:13	Finished	MS (1ppb), IWST-170622D,10
31	N025493-006A,SAMF	23	1000	Unknown		08/17/2017 12:22	Finished	SAMP,10mL
32	N025493-006AMS,MS	24	1000	Unknown		08/17/2017 12:32	Finished	MS (1ppb), IWST-170622D,10
33	N025493-007A,SAMF	25	1000	Unknown		08/17/2017 12:41	Finished	SAMP,10mL
34	N025493-007AMS,MS	26	1000	Unknown		08/17/2017 12:51	Finished	MS (1ppb), IWST-170622D,10
35	N025493-008A,SAMF	27	1000	Unknown		08/17/2017 13:00	Finished	SAMP,10mL
36	N025493-008AMS,MS	28	1000	Unknown		08/17/2017 13:10	Finished	MS (1ppb), IWST-170622D,10
37	CCV-3,CCV,1,	29	1000	Unknown		08/17/2017 13:19	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		08/17/2017 13:28	Finished	CCB R170724A
39	N025493-009A,SAMF	31	1000	Unknown		08/17/2017 13:38	Finished	SAMP,10mL
40	N025493-009AMS,MS	32	1000	Unknown		08/17/2017 13:47	Finished	MS (1ppb), IWST-170622D,10
41	N025493-010A,SAMF	33	1000	Unknown		08/17/2017 13:57	Finished	SAMP,10mL
42	N025493-010AMS,MS	34	1000	Unknown		08/17/2017 14:06	Finished	MS (1ppb), IWST-170622D,10
43	N025493-011A,SAMF	35	1000	Unknown		08/17/2017 14:16	Finished	SAMP,10mL
44	N025493-011AMS,MS	36	1000	Unknown		08/17/2017 14:25	Finished	MS (1ppb), IWST-170622D,10
45	N025493-012A,SAMF	37	1000	Unknown		08/17/2017 14:35	Finished	SAMP,10mL
46	N025493-012AMS,MS	38	1000	Unknown		08/17/2017 14:44	Finished	MS (1ppb), IWST-170622D,10
47	N025026-001A,SAMF	39	1000	Unknown		08/17/2017 14:54	Finished	SAMP,1>10mL
48	N025175-019A,SAMF	40	1000	Unknown		08/17/2017 15:03	Finished	SAMP,0.1>10mL
49	CCV-4,CCV1,1,	41	1000	Unknown		08/17/2017 15:12	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	42	1000	Unknown		08/17/2017 15:22	Finished	CCB R170724A
51	N022631-001A,SAMF	43	1000	Unknown		08/17/2017 15:31	Finished	SAMP,2>10mL
52	N022736-019A,SAMF	44	1000	Unknown		08/17/2017 15:40	Finished	SAMP,0.1>10mL
53	N025026-001AREP,D	1	1000	Unknown		08/17/2017 15:53	Finished	REP,1>10mL
54	N025026-001A,SAMF	2	1000	Unknown		08/17/2017 16:04	Finished	SAMP,2>10mL
55	N025026-001AREP,D	3	1000	Unknown		08/17/2017 16:14	Finished	REP,2>10mL
56	N025175-019AREP,D	4	1000	Unknown		08/17/2017 16:23	Finished	REP,0.1>10mL
57	N025175-019A,SAMF	5	1000	Unknown		08/17/2017 16:33	Finished	SAMP,0.2>10mL
58	N025175-019AREP,D	6	1000	Unknown		08/17/2017 16:42	Finished	REP,0.2>10mL
59	N025493-013A,SAMF	7	1000	Unknown		08/17/2017 16:52	Finished	SAMP,10mL
60	N025493-013AMS,MS	8	1000	Unknown		08/17/2017 17:01	Finished	MS (1ppb), IWST-170622D,10

61	CCV-5,CCV,1,	9	1000	Unknown		08/17/2017 17:11	Finished	CCV @5ppb, IWST-170622C
62	CCB-5,CCB,1,	10	1000	Unknown		08/17/2017 17:20	Finished	CCB R170724A
63	N025493-014A,SAMF	11	1000	Unknown		08/17/2017 17:29	Finished	SAMP,10mL
64	N025493-014AMS,MS	12	1000	Unknown		08/17/2017 17:39	Finished	MS (1ppb), IWST-170622D,10
65	N025493-015A,SAMF	13	1000	Unknown		08/17/2017 17:48	Finished	SAMP,10mL
66	N025493-015AMS,MS	14	1000	Unknown		08/17/2017 17:58	Finished	MS (1ppb), IWST-170622D,10
67	N025493-016A,SAMF	15	1000	Unknown		08/17/2017 18:07	Finished	SAMP,10mL
68	N025493-016AMS,MS	16	1000	Unknown		08/17/2017 18:17	Finished	MS (1ppb), IWST-170622D,10
69	N025493-017A,SAMF	17	1000	Unknown		08/17/2017 18:26	Finished	SAMP,10mL
70	N025493-017AMS,MS	18	1000	Unknown		08/17/2017 18:36	Finished	MS (1ppb), IWST-170622D,10
71	N025396-009A,SAMF	19	1000	Unknown		08/17/2017 18:45	Finished	SAMP,10mL
72	N025396-009AMS,MS	20	1000	Unknown		08/17/2017 18:55	Finished	MS (1ppb), IWST-170622D,10
73	CCV-6,CCV1,1,	21	1000	Unknown		08/17/2017 19:04	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	22	1000	Unknown		08/17/2017 19:14	Finished	CCB R170724A
75	SHUTDOWN	23	1000	Unknown		08/17/2017 19:23	Finished	
76	Eluent: R170815E	24	1000	Unknown		n.a.	Finished	Eluent
77	PCR: R170815F	25	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 8/17/17
Time Prepared: 0944
Prepared By: NBA

Slope: 98.6%
pH 4: 4.02 @ 21.1°C
7: 7.03 @ 21.2°C
10: 10.04 @ 21.1°C

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M70815E
NH4OH + NH4SO4 buffer: M70724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025493-001A	9.33	–	~250ml	~250ml		M70724A 1/3 1/1
2)	1A	9.35	–				2/3 2/1
3)	1A	9.40	–				3/3 3/1
4)	2A	9.34	–				1/2
5)	2A	9.34	–				2/2
6)	2A	9.38	–				3/2
7)	3A	9.37	–				1/3
8)	3A	9.42	–				2/3
9)	3A	9.36	–				3/3
10)	4A	9.47	–				1/4
11)	4A	9.50	–				2/4
12)	4A	9.52	–				3/4
13)	5A	9.65	–				1/5
14)	5A	9.68	–				2/5
15)	~~5A~~ 5A nbr	9.61	–				3/5
	6A	9.34	–				1/6

Sample Preparation

Date Prepared: 8/17/17
Time Prepared: 0944A
Prepared By: NBA

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M70815E
NH4OH + NH4SO4 buffer: M70724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025493-6A	9.42	–	~250ml	~250ml		M70724A 2/6
2)	6A	9.50	–				3/6
3)	7A	9.45	–				1/7
4)	7A	9.38	–				2/7
5)	8A	9.35	–				3/7
6)	8A	9.52	–				1/8
7)	8A	9.34	–				2/8
8)	8A	9.38	–				3/8
9)	9A	9.44	–				1/9
10)	9A	9.36	–				2/9
11)	9A	9.49	–				3/9
12)	10A	9.39	–				1/10
13)	10A	9.48	–				2/10
14)	10A	9.33	–				3/10
15)	11A	9.40	–				1/11
	11A	9.42	–				2/11

Logbook No. 13

nba 8/22/2017

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/17/17
Time Prepared: 0944H
Prepared By: MBA

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M70815E
NH4OH + NH4SO4 buffer: M70724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025493-11A	9.37	–	~250ml	~250ml		M70724A 3/11
2)	12A	9.33	–				1/12
3)	12A	9.32	–				2/12
4)	12A	9.30	–				3/12
5)	13A	9.47	–				1/13
6)	13A	9.51	–				2/13
7)	13A	9.38	–				3/13
8)	14A	9.44	–				1/14
9)	14A	9.44	–				2/14
10)	14A	9.42	–				3/14
11)	15A	9.45	–				1/15
12)	15A	–	–				2/15
13)	15A	–	–				3/15 no samples
14)	16A	9.46	–				1/16
15)	16B	–	–				2/16
	16A	–	–				3/16 no samples

Sample Preparation

Date Prepared: 8/17/17
Time Prepared: 0944H
Prepared By: MBA

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M70815E
NH4OH + NH4SO4 buffer: M70724A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025493-17A	9.32	–	~250ml	~250ml		M70724A 1/17
2)	17A	9.30	–				2/17
3)	17A	9.31	–				3/17
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

rba 8/22/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/2/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0548	0.2647	1.3349	2.6448	3.9550	5.2553	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST160817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ICV**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2737753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2737754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCV**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.905	0.20	5.000	0	98.1	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.191	0.20	0.2000	0	95.4	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.861	0.20	10.00	0	98.6	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCV**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.941	0.20	5.000	0	98.8	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.848	0.20	10.00	0	98.5	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCV**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.909	0.20	5.000	0	98.2	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ZZZZZZ**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.850	0.20	10.00	0	98.5	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **ICB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2737755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117235**
Client ID: **CCB**	Batch ID: **R117235**	TestNo: **EPA 218.6**		Analysis Date: **8/17/2017**	SeqNo: **2737810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/17/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.215	
CCV-2	4.215	
CCV-3	4.206	
CCV-4	4.206	
CCV-5	4.206	
CCV-6	4.198	
Average	4.208	
Actual RT Window	4.128 - 4.288	
Applied RT Window	4.008 - 4.408	
MB-R117235	N.A.	N.A.
LCS-R117235	4.215	PASS
N025493-001A	4.190	PASS
N025493-001AMS	4.215	PASS
N025493-001AMSD	4.215	PASS
N025493-002A	4.215	PASS
N025493-002AMS	4.215	PASS
N025493-003A	4.190	PASS
N025493-003AMS	4.215	PASS
N025493-003ADUP	4.206	PASS
N025493-004A	4.215	PASS
N025493-004AMS	4.206	PASS
N025493-005A	4.190	PASS
N025493-005AMS	4.206	PASS
N025493-006A	4.198	PASS
N025493-006AMS	4.206	PASS
N025493-007A	4.206	PASS
N025493-007AMS	4.206	PASS
N025493-008A	4.198	PASS
N025493-008AMS	4.206	PASS
N025493-009A	4.198	PASS
N025493-009AMS	4.198	PASS
N025493-010A	4.198	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/17/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.215	
CCV-2	4.215	
CCV-3	4.206	
CCV-4	4.206	
CCV-5	4.206	
CCV-6	4.198	
Average	4.208	
Actual RT Window	4.128 - 4.288	
Applied RT Window	4.008 - 4.408	
N025493-010AMS	4.198	PASS
N025493-011A	4.223	PASS
N025493-011AMS	4.206	PASS
N025493-012A	4.215	PASS
N025493-012AMS	4.198	PASS
N025026-001A	4.206	PASS
N025175-019A	4.206	PASS
N022631-001A	4.206	PASS
N022736-019A	4.206	PASS
N025026-001AREP	4.198	PASS
N025026-001A	4.206	PASS
N025026-001AREP	4.198	PASS
N025175-019AREP	4.206	PASS
N025175-019A	4.206	PASS
N025175-019AREP	4.206	PASS
N025493-013A	4.190	PASS
N025493-013AMS	4.181	PASS
N025493-014A	4.173	PASS
N025493-014AMS	4.198	PASS
N025493-015A	4.198	PASS
N025493-015AMS	4.206	PASS
N025493-016A	N.A.	N.A.
N025493-016AMS	4.206	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/17/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.215	
CCV-2	4.215	
CCV-3	4.206	
CCV-4	4.206	
CCV-5	4.206	
CCV-6	4.198	
Average	4.208	
Actual RT Window	4.128 - 4.288	
Applied RT Window	4.008 - 4.408	
N025493-017A	4.198	PASS
N025493-017AMS	4.198	PASS
N025396-009A	4.198	PASS
N025396-009AMS	4.198	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	08/02/17 1:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/02/17 1:49 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	08/02/17 1:58 PM	Reported
13	MB-R116844	MBLK	1	Hexavalent Chromium	08/02/17 2:08 PM	Reported
14	LCS-R116844	LCS	1	Hexavalent Chromium	08/02/17 2:17 PM	Reported
15	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 2:28 PM	Reported
16	N025284-001BMS	MS	100	Hexavalent Chromium	08/02/17 2:39 PM	Reported
17	N025284-001BMSD	MSD	100	Hexavalent Chromium	08/02/17 2:48 PM	Reported
18	N025284-002C	SAMP	1	Hexavalent Chromium	08/02/17 2:57 PM	Reported
19	N025284-002CMS	MS	1	Hexavalent Chromium	08/02/17 3:07 PM	Reported
20	N025254-009A	SAMP	1	Hexavalent Chromium	08/02/17 3:16 PM	Not Reported
21	N025254-010A	SAMP	1	Hexavalent Chromium	08/02/17 3:26 PM	Reported
22	N025284-002C	SAMP	5	Hexavalent Chromium	08/02/17 3:35 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	08/02/17 3:45 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	08/02/17 3:54 PM	Reported
25	N025284-002CMS	MS	5	Hexavalent Chromium	08/02/17 4:04 PM	Not Reported
26	N025254-001A	SAMP	1	Hexavalent Chromium	08/02/17 4:13 PM	Reported
27	N025254-002A	SAMP	5	Hexavalent Chromium	08/02/17 4:23 PM	Not Reported
28	N025254-003A	SAMP	50	Hexavalent Chromium	08/02/17 4:32 PM	Reported
29	N025254-004A	SAMP	1	Hexavalent Chromium	08/02/17 4:42 PM	Reported
30	N025254-005A	SAMP	1	Hexavalent Chromium	08/02/17 4:51 PM	Reported
31	N025254-006A	SAMP	1	Hexavalent Chromium	08/02/17 5:00 PM	Reported
32	N025254-007A	SAMP	200	Hexavalent Chromium	08/02/17 5:10 PM	Reported
33	N025254-008A	SAMP	1	Hexavalent Chromium	08/02/17 5:19 PM	Reported
34	N025254-011A	SAMP	1	Hexavalent Chromium	08/02/17 5:29 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	08/02/17 5:38 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	08/02/17 5:48 PM	Reported
37	N025254-012A	SAMP	1	Hexavalent Chromium	08/02/17 5:57 PM	Reported
38	N025254-013A	SAMP	1	Hexavalent Chromium	08/02/17 6:07 PM	Reported
39	N025254-014A	SAMP	5	Hexavalent Chromium	08/02/17 6:16 PM	Not Reported
40	N025254-015A	SAMP	1	Hexavalent Chromium	08/02/17 6:26 PM	Reported
41	N025254-016A	SAMP	1	Hexavalent Chromium	08/02/17 6:35 PM	Reported
42	N025254-017A	SAMP	5	Hexavalent Chromium	08/02/17 6:45 PM	Reported

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IC-07 RBA 8/4/2017 1:24 PM

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025254-018A	SAMP	5	Hexavalent Chromium	08/02/17 6:54 PM	Reported
44	N025254-009A	SAMP	10	Hexavalent Chromium	08/02/17 7:04 PM	Reported
45	N025254-009ADUP	DUP	10	Hexavalent Chromium	08/02/17 7:13 PM	Reported
46	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 7:22 PM	Not Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	08/02/17 7:32 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	08/02/17 7:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170802A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Aug/17 20:12:12**
No. of Injections:	**51**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		08/02/2017 13:37	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		08/02/2017 13:49	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		08/02/2017 13:58	Finished	ICB R170724A
13	MB-H2O,MBLK,1	14	1000	Unknown		08/02/2017 14:08	Finished	MB R170724A
14	LCS-H2O,LCS,1	15	1000	Unknown		08/02/2017 14:17	Finished	LCS, IWST-170622D
15	N025284-001B,SAMF	1	1000	Unknown		08/02/2017 14:28	Finished	SAMP,0.1> 10mL
16	N025284-001BMS,MS	2	1000	Unknown		08/02/2017 14:39	Finished	MS (5ppb), IWST-170622D,0.1
17	N025284-001BMSD,M	3	1000	Unknown		08/02/2017 14:48	Finished	MSD (5ppb), IWST-170622D,0.
18	N025284-002C,SAMF	4	1000	Unknown		08/02/2017 14:57	Finished	SAMP, 10mL
19	N025284-002CMS,MS	5	1000	Unknown		08/02/2017 15:07	Finished	MS (1ppb), IWST-170622D,10
20	N025254-009A,SAMF	6	1000	Unknown		08/02/2017 15:16	Finished	SAMP, 10mL
21	N025254-010A,SAMF	7	1000	Unknown		08/02/2017 15:26	Finished	SAMP, 10mL
22	N025284-002C,SAMF	8	1000	Unknown		08/02/2017 15:35	Finished	SAMP,2> 10mL
23	CCV-1,CCV1,1,	9	1000	Unknown		08/02/2017 15:45	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	10	1000	Unknown		08/02/2017 15:54	Finished	CCB R170724A
25	N025284-002CMS,MS	11	1000	Unknown		08/02/2017 16:04	Finished	SAMP, 2>10mL
26	N025254-001A,SAMF	12	1000	Unknown		08/02/2017 16:13	Finished	SAMP, 10mL
27	N025254-002A,SAMF	13	1000	Unknown		08/02/2017 16:23	Finished	SAMP, 2>10mL
28	N025254-003A,SAMF	14	1000	Unknown		08/02/2017 16:32	Finished	SAMP, 0.2>10mL
29	N025254-004A,SAMF	15	1000	Unknown		08/02/2017 16:42	Finished	SAMP, 10mL
30	N025254-005A,SAMF	16	1000	Unknown		08/02/2017 16:51	Finished	SAMP, 10mL
31	N025254-006A,SAMF	17	1000	Unknown		08/02/2017 17:00	Finished	SAMP, 10mL
32	N025254-007A,SAMF	18	1000	Unknown		08/02/2017 17:10	Finished	SAMP, 0.05>10mL
33	N025254-008A,SAMF	19	1000	Unknown		08/02/2017 17:19	Finished	SAMP, 10mL
34	N025254-011A,SAMF	20	1000	Unknown		08/02/2017 17:29	Finished	DUP, 10mL
35	CCV-2,CCV,1,	21	1000	Unknown		08/02/2017 17:38	Finished	CCV @5ppb, IWST-170622D
36	CCB-2,CCB,1,	22	1000	Unknown		08/02/2017 17:48	Finished	CCB R170724A
37	N025254-012A,SAMF	23	1000	Unknown		08/02/2017 17:57	Finished	SAMP, 10mL
38	N025254-013A,SAMF	24	1000	Unknown		08/02/2017 18:07	Finished	SAMP, 10mL
39	N025254-014A,SAMF	25	1000	Unknown		08/02/2017 18:16	Finished	SAMP, 2>10mL
40	N025254-015A,SAMF	26	1000	Unknown		08/02/2017 18:26	Finished	SAMP, 10mL
41	N025254-016A,SAMF	27	1000	Unknown		08/02/2017 18:35	Finished	SAMP, 10mL
42	N025254-017A,SAMF	28	1000	Unknown		08/02/2017 18:45	Finished	SAMP,2> 10mL
43	N025254-018A,SAMF	29	1000	Unknown		08/02/2017 18:54	Finished	SAMP,2> 10mL
44	N025254-009A,SAMF	30	1000	Unknown		08/02/2017 19:04	Finished	SAMP, 1>10mL
45	N025254-009ADUP,D	31	1000	Unknown		08/02/2017 19:13	Finished	DUP, 1>10mL
46	N025284-001B,SAMF	32	1000	Unknown		08/02/2017 19:22	Finished	SAMP,0.1> 10mL
47	CCV-3,CCV1,1,	33	1000	Unknown		08/02/2017 19:32	Finished	CCV @10ppb, IWST-170622C
48	CCB-3,CCB,1,	34	1000	Unknown		08/02/2017 19:41	Finished	CCB R170724A
49	SHUTDOWN	35	1000	Unknown		08/02/2017 19:51	Finished	
50	Eluent: R170801A	36	1000	Unknown		n.a.	Finished	Eluent
51	PCR: R170801B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

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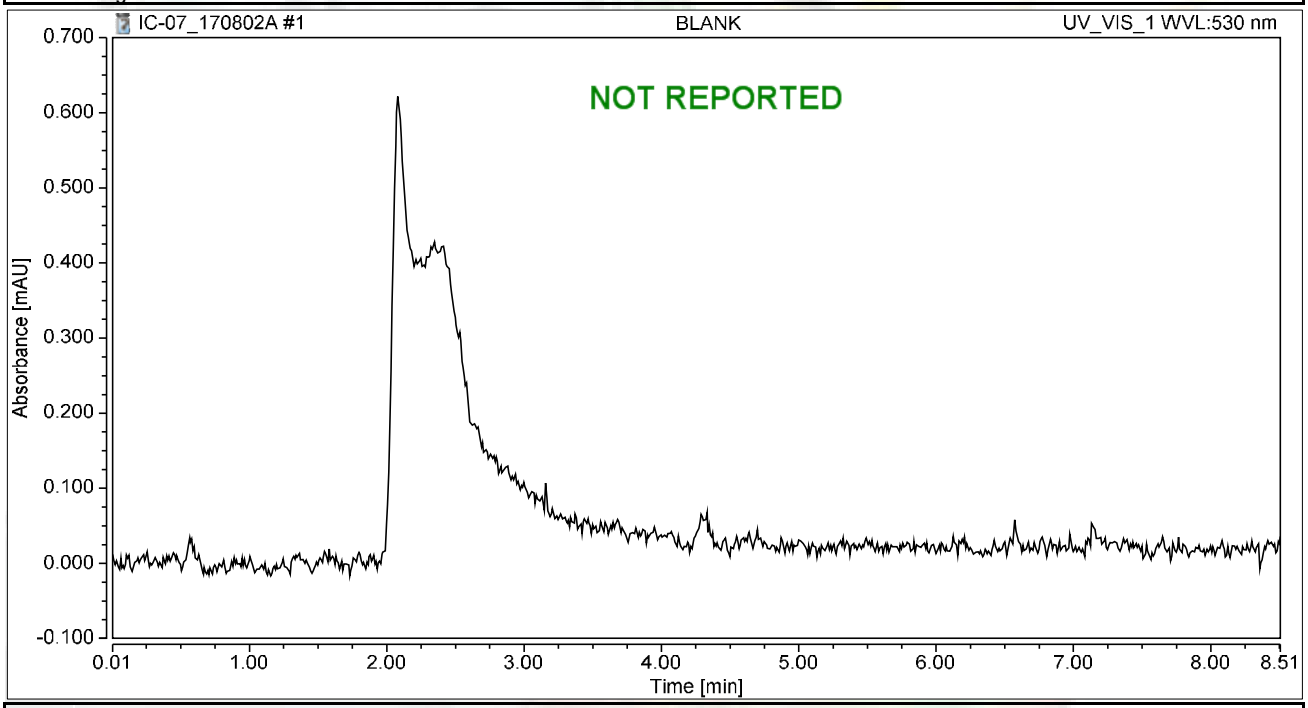
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

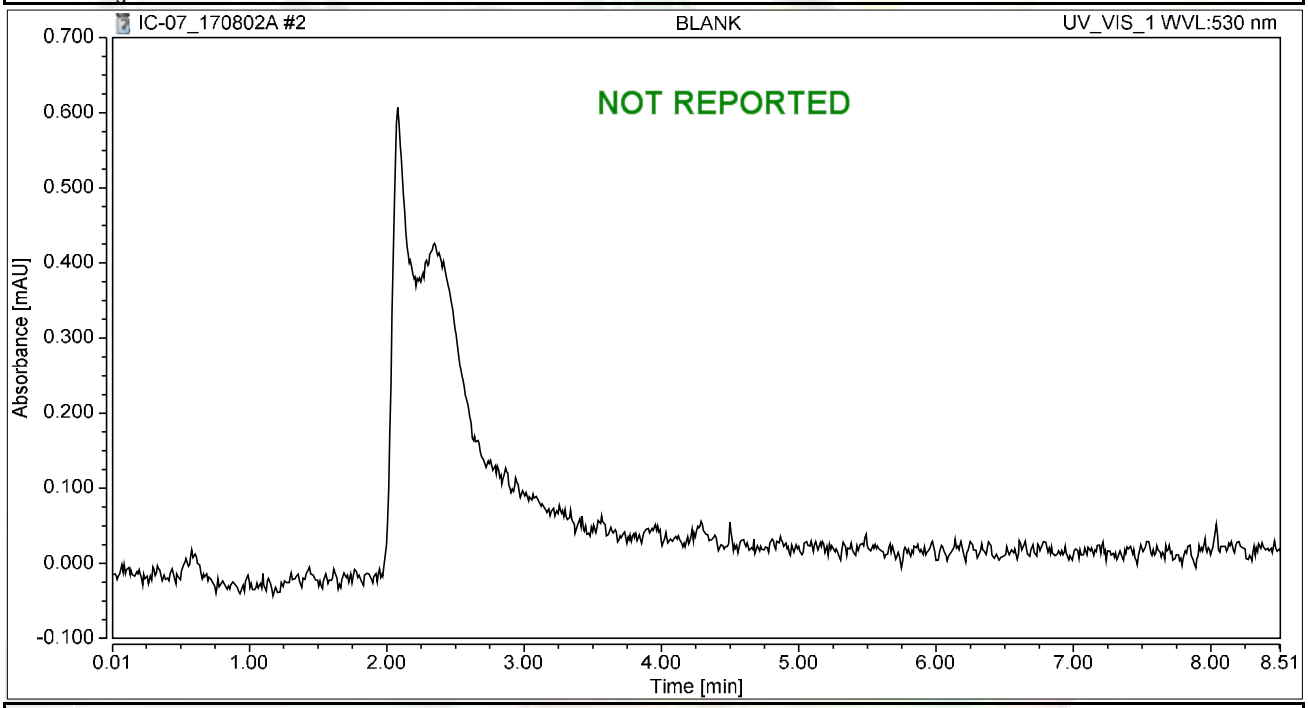
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

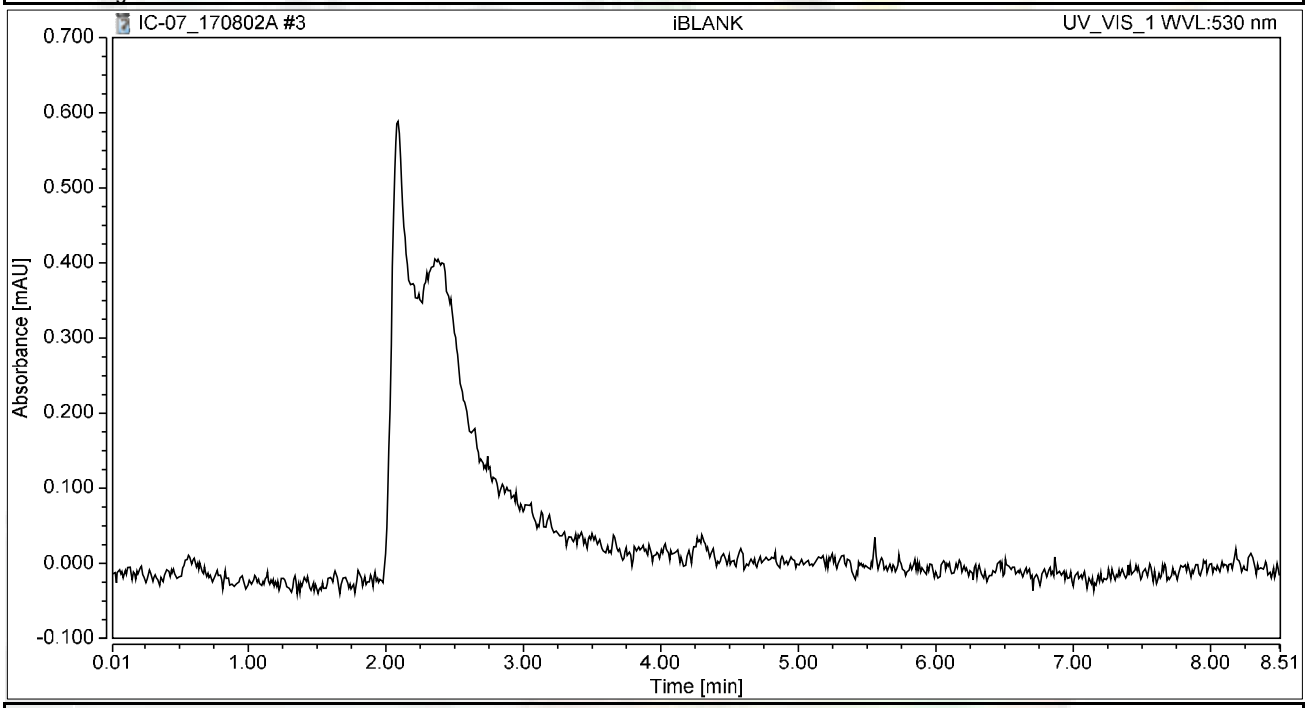
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

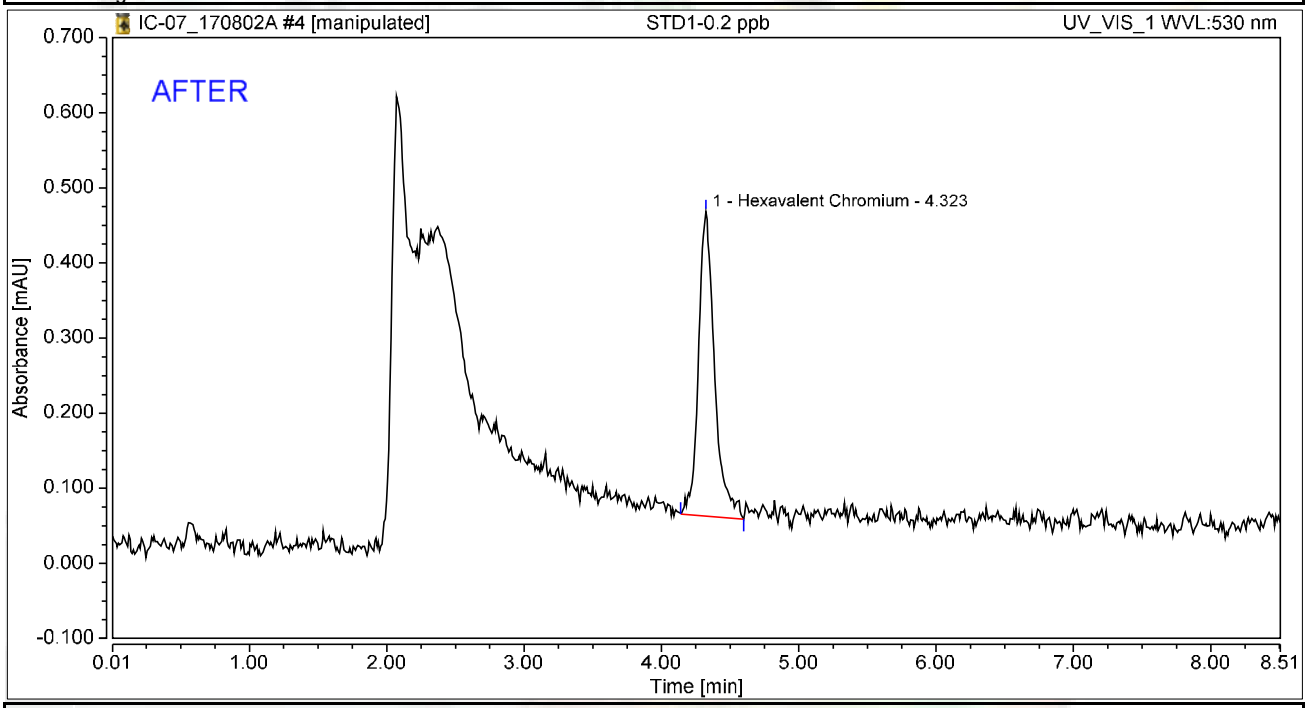
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.055	0.405	100.00	100.00	0.2082
Total:			**0.055**	**0.405**	**100.00**	**100.00**	

rba 8/4/2017

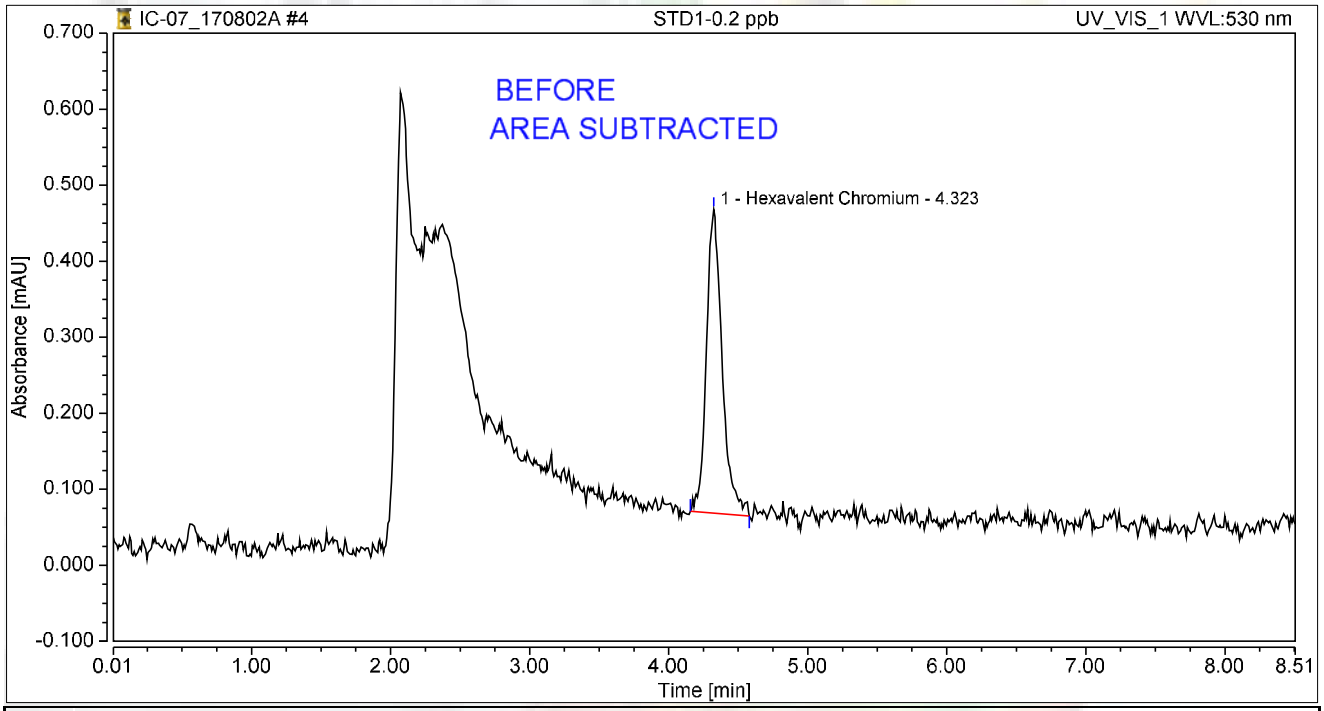
Reviewed by: 8/16/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.052	0.399	100.00	100.00	0.1970
Total:			**0.052**	**0.399**	**100.00**	**100.00**	

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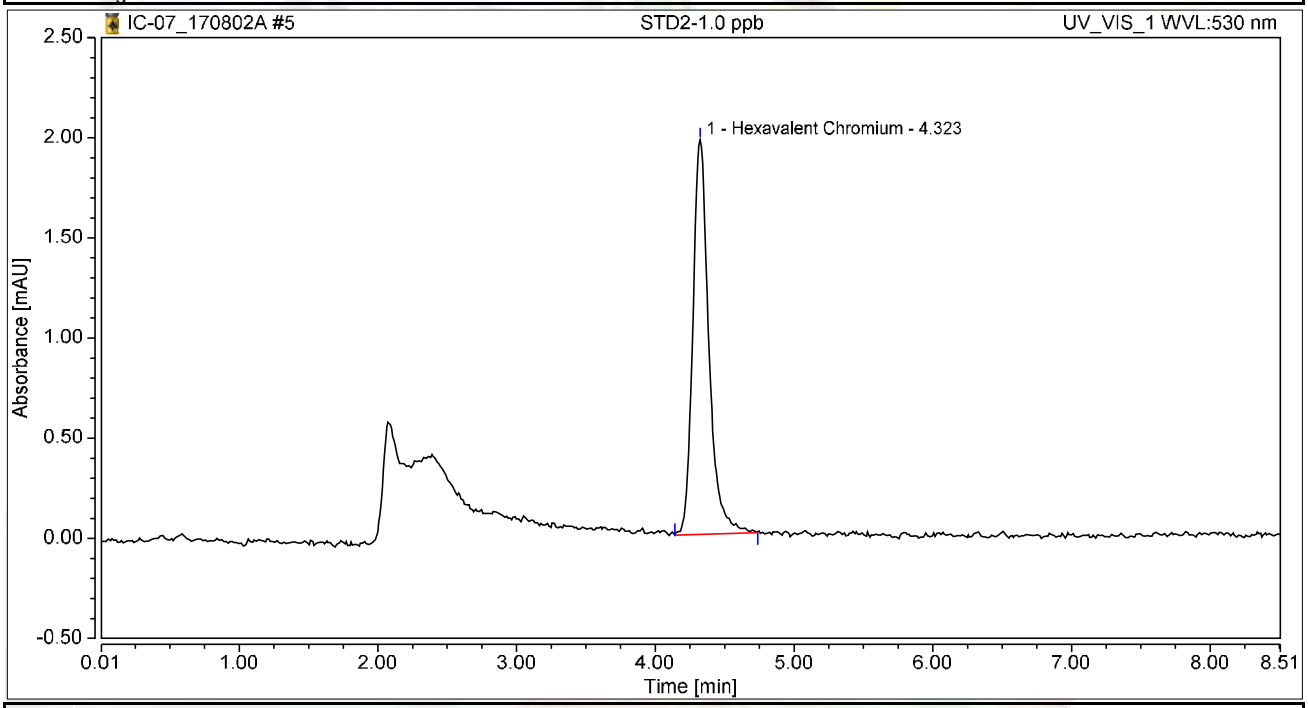
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

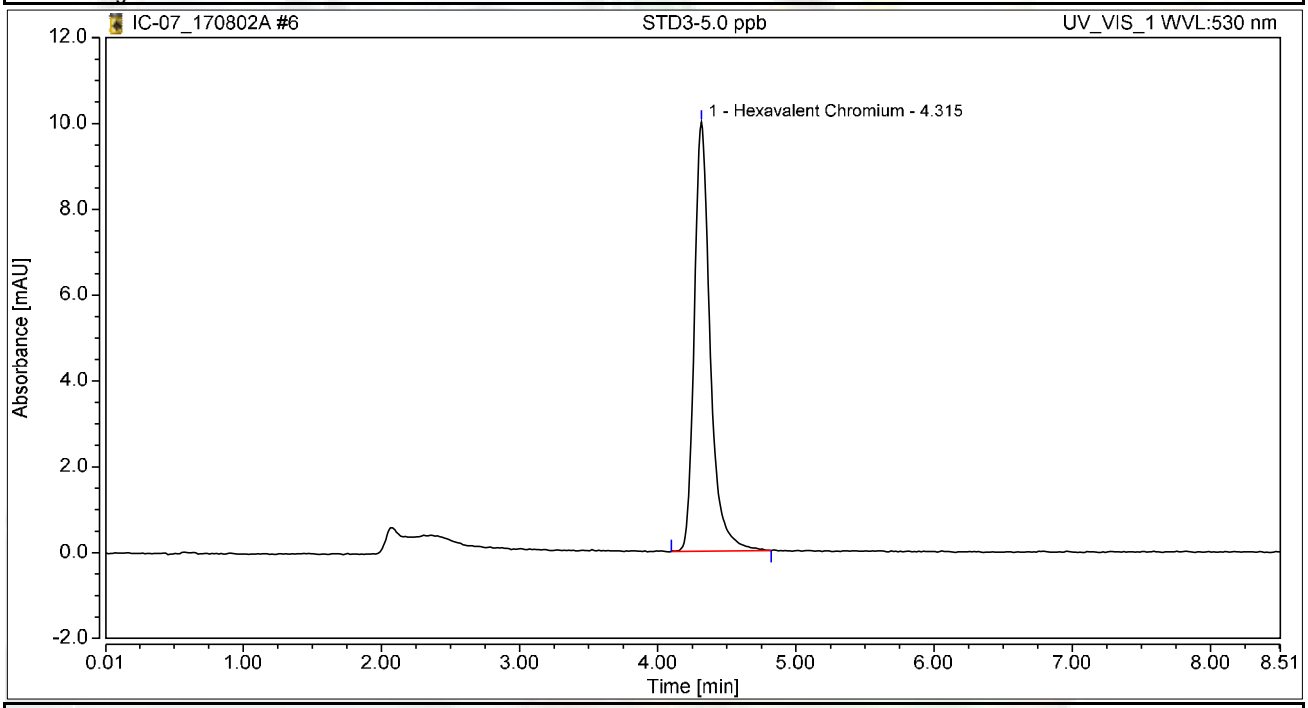
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.265	1.972	100.00	100.00	1.0051
Total:			**0.265**	**1.972**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

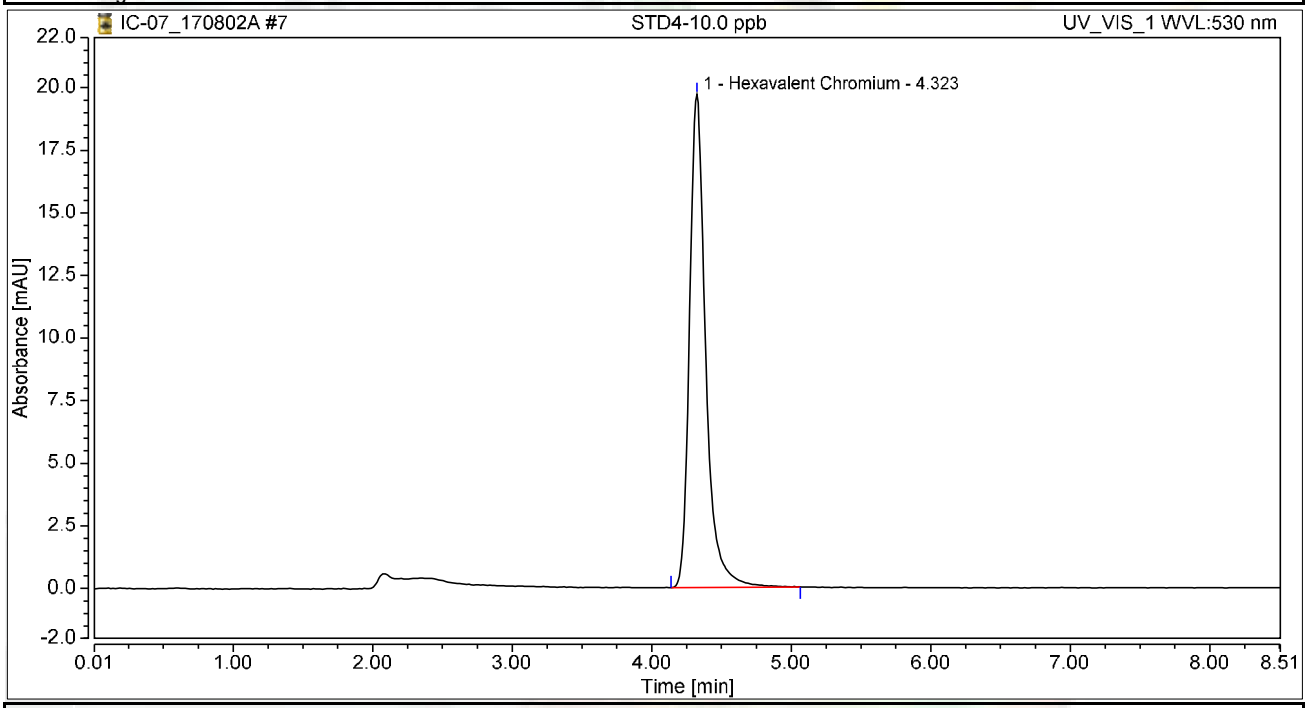
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	1.335	9.999	100.00	100.00	5.0677
Total:			**1.335**	**9.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

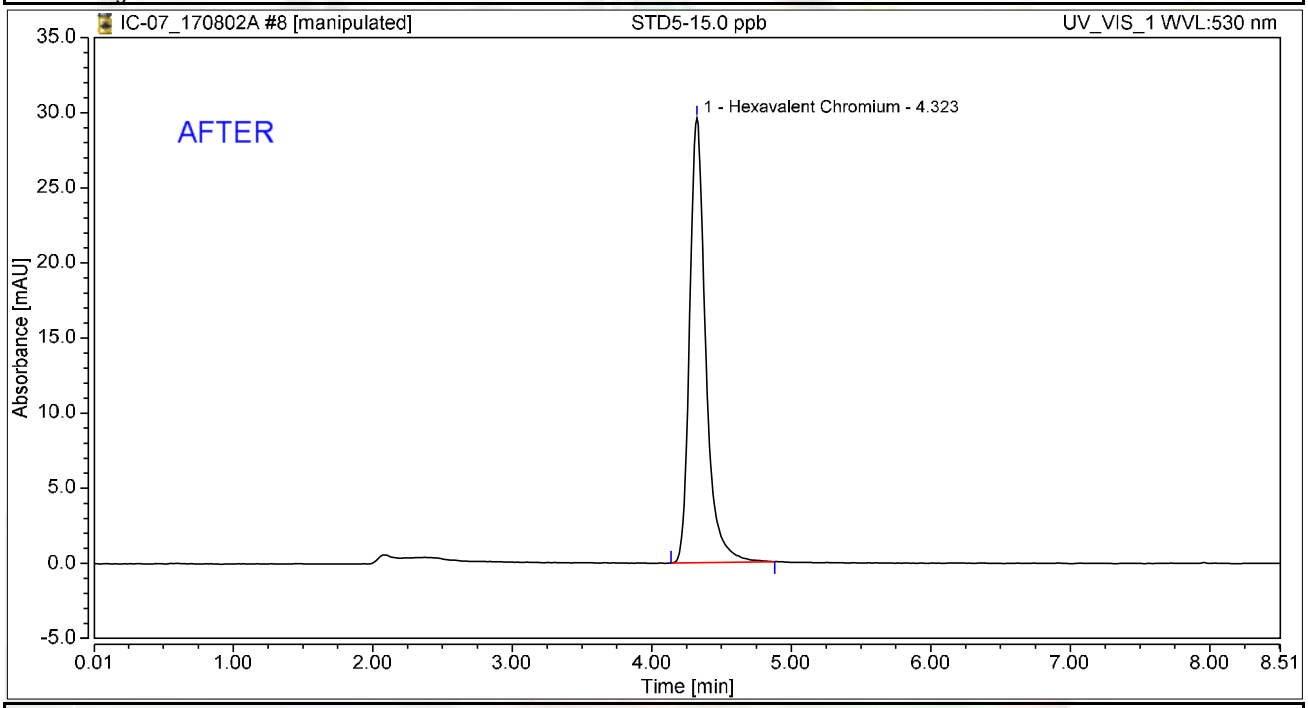
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	2.645	19.695	100.00	100.00	10.0407
Total:			**2.645**	**19.695**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	3.955	29.622	100.00	100.00	15.0148
Total:			**3.955**	**29.622**	**100.00**	**100.00**	

rba 8/4/2017

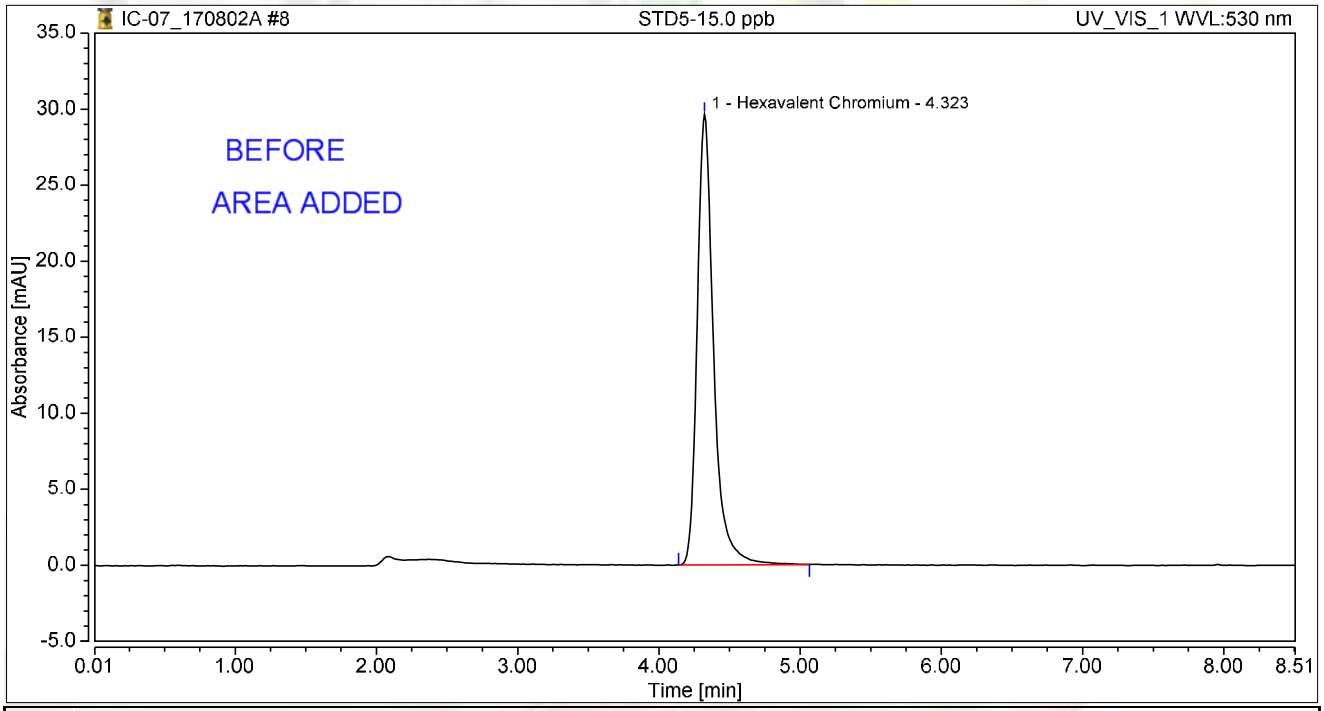
Reviewed by: Nancy 8/16/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	3.982	29.636	100.00	100.00	15.0336
Total:			**3.982**	**29.636**	**100.00**	**100.00**	

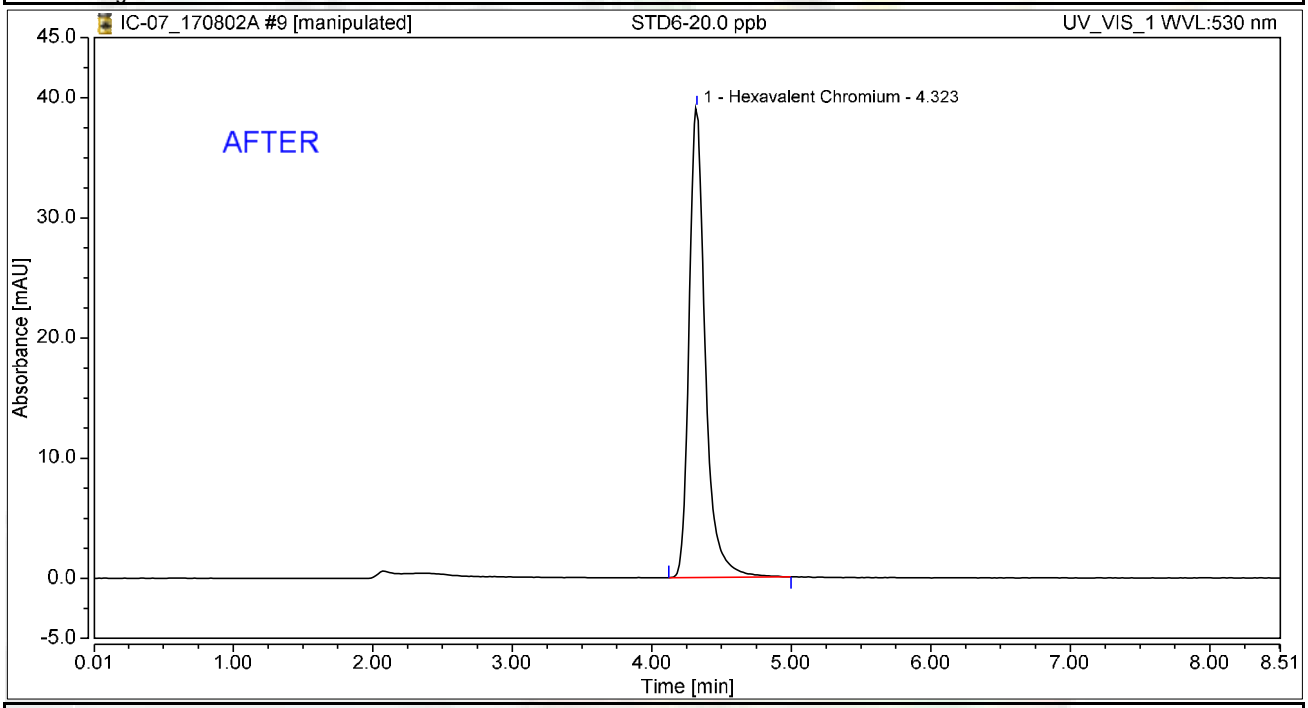
rba 8/4/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	5.255	39.087	100.00	100.00	19.9513
Total:			**5.255**	**39.087**	**100.00**	**100.00**	

rba 8/4/2017

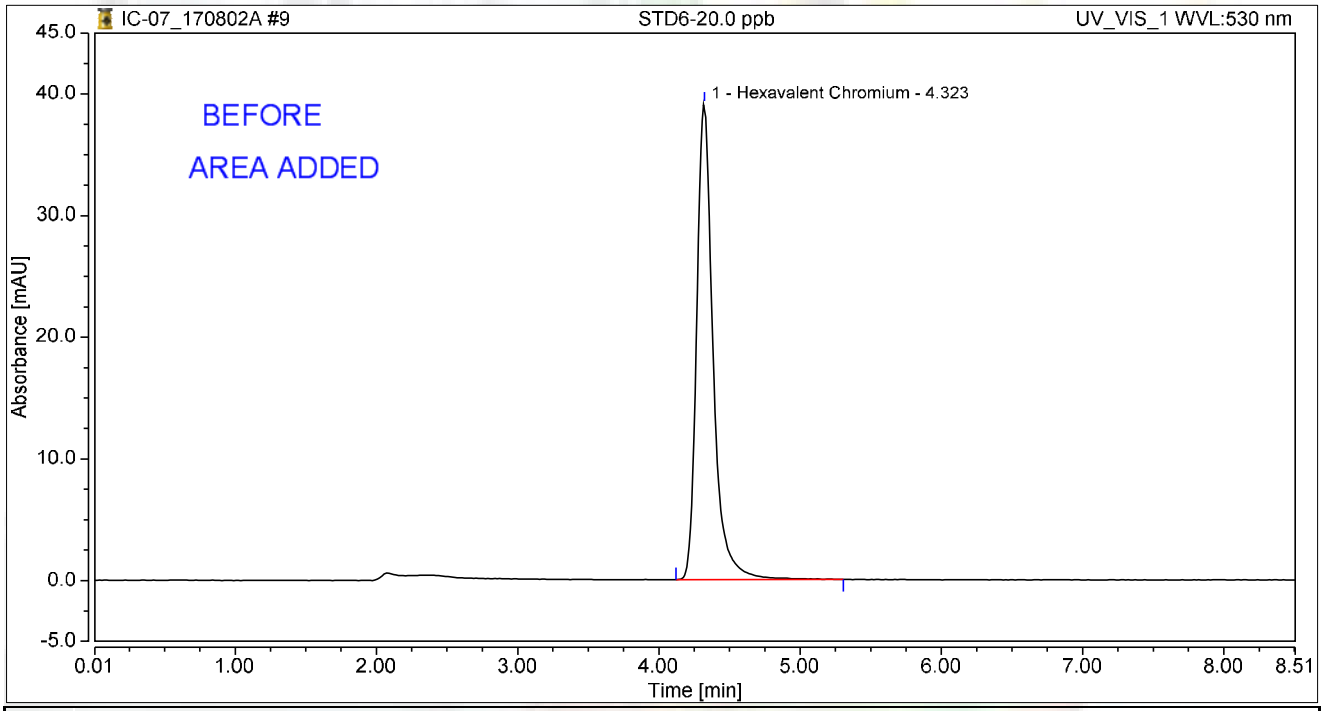
Reviewed by: 8/16/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

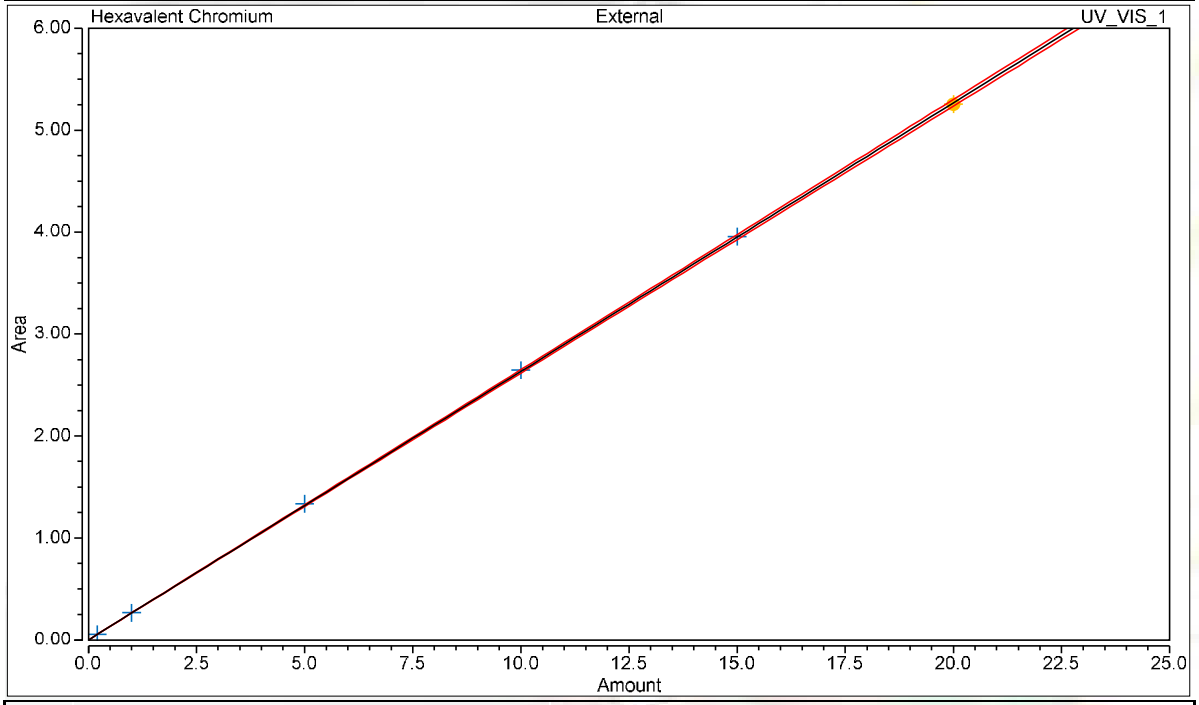
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	5.291	39.100	100.00	100.00	19.9729
Total:			**5.291**	**39.100**	**100.00**	**100.00**	

rba 8/4/2017

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2634
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99997

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

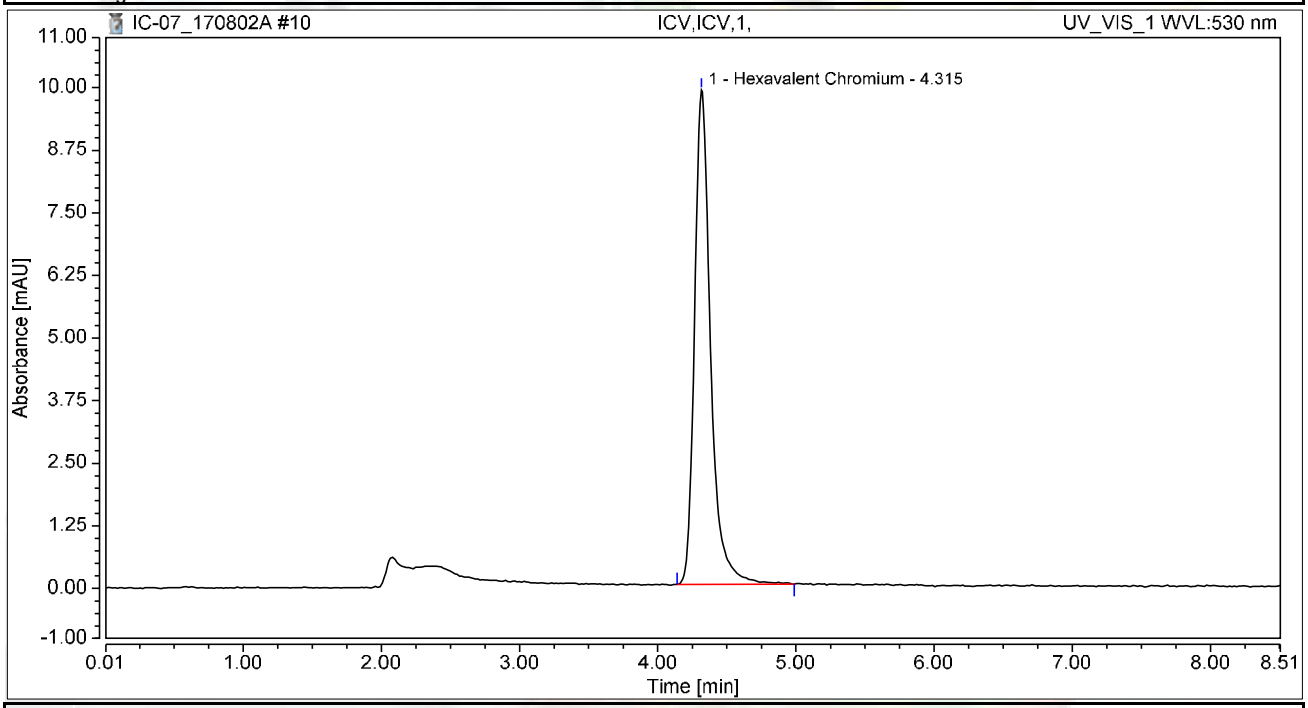
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0548	0.055	0.405
5	STD2-1.0 ppb	02	1.0000	0.2647	0.265	1.972
6	STD3-5.0 ppb	03	5.0000	1.3349	1.335	9.999
7	STD4-10.0 ppb	04	10.0000	2.6448	2.645	19.695
8	STD5-15.0 ppb	05	15.0000	3.9550	3.955	29.622
9	STD6-20.0 ppb	06	20.0000	5.2553	5.255	39.087

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

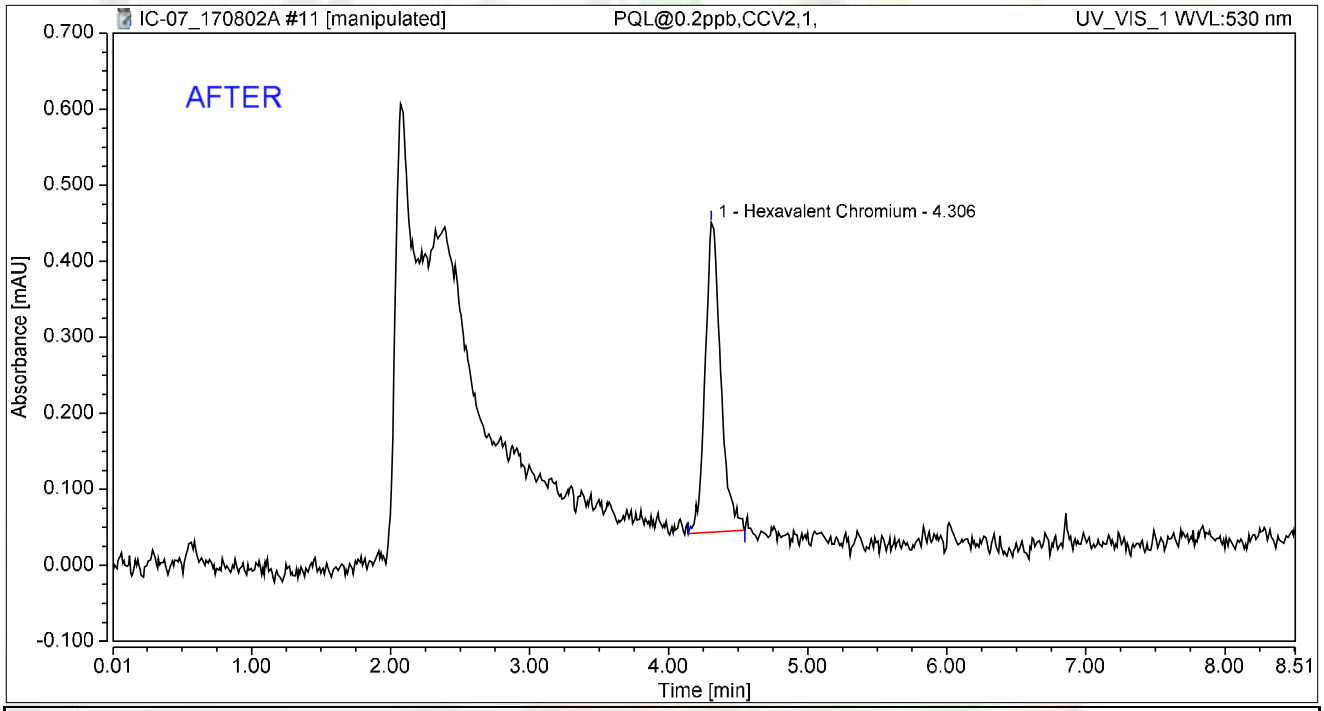
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	1.331	9.873	100.00	100.00	5.0542
Total:			**1.331**	**9.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.053	0.407	100.00	100.00	0.2013
Total:			**0.053**	**0.407**	**100.00**	**100.00**	

rba 8/4/2017

Reviewed by: Nancy 8/16/2017

My first report/Integration

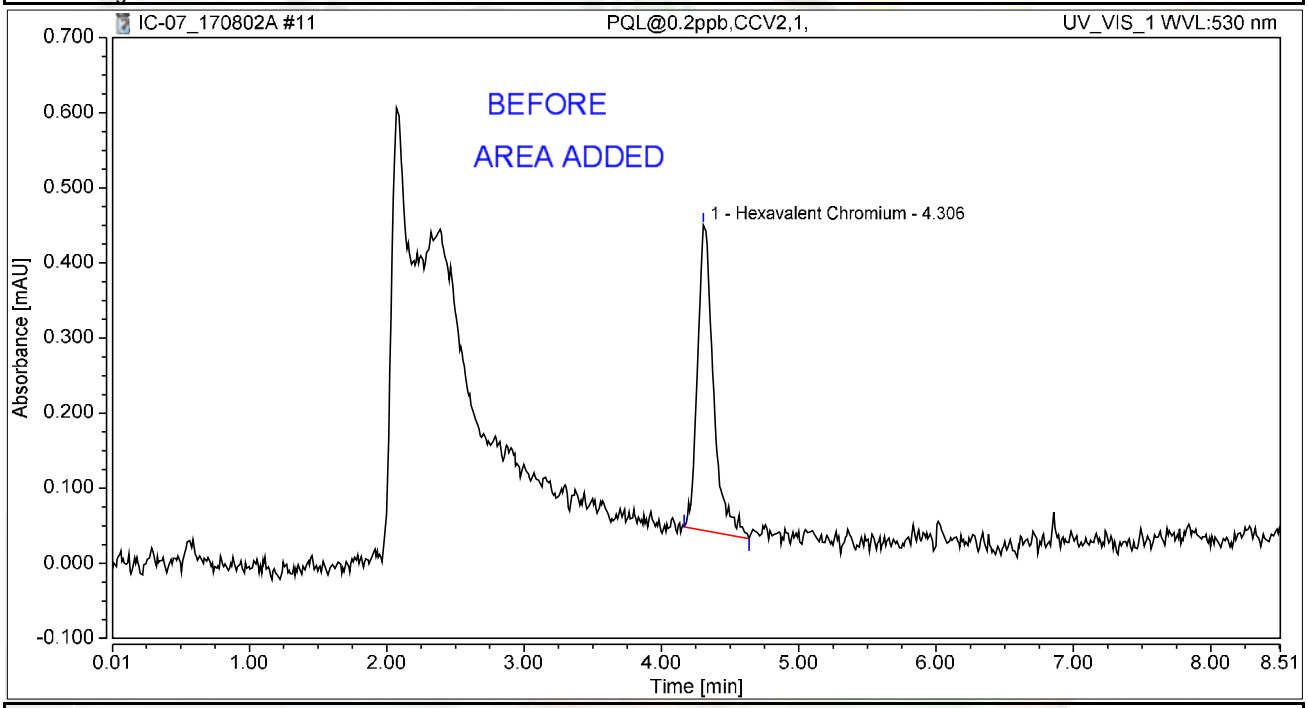
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.055	0.407	100.00	100.00	0.2076
Total:			**0.055**	**0.407**	**100.00**	**100.00**	

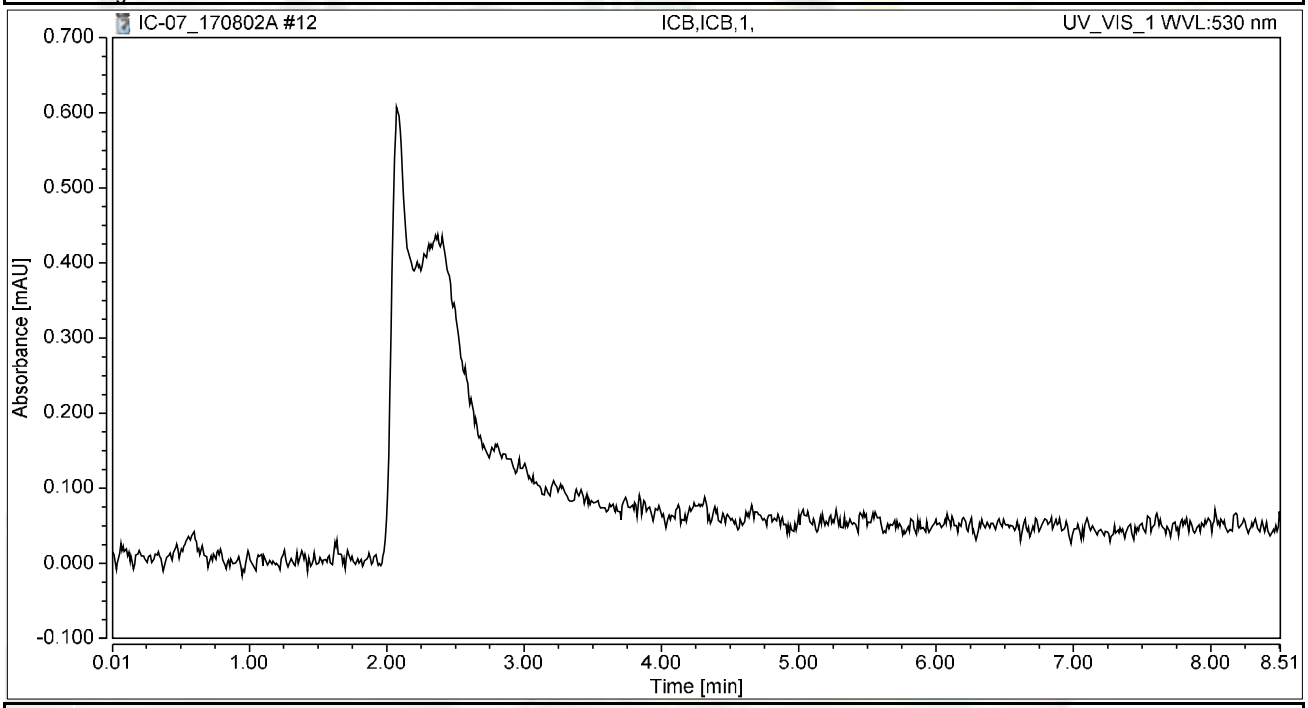
rba 8/4/2017

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170817A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/17/17 8:47 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/17/17 8:58 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/17/17 9:07 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/17/17 9:16 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/17/17 9:26 AM	Reported
15	MB-R117235	MBLK	1	Hexavalent Chromium	08/17/17 9:35 AM	Reported
16	LCS-R117235	LCS	1	Hexavalent Chromium	08/17/17 9:47 AM	Reported
17	N025493-001A	SAMP	1	Hexavalent Chromium	08/17/17 10:08 AM	Reported
18	N025493-001AMS	MS	1	Hexavalent Chromium	08/17/17 10:19 AM	Reported
19	N025493-001AMSD	MSD	1	Hexavalent Chromium	08/17/17 10:29 AM	Reported
20	N025493-002A	SAMP	1	Hexavalent Chromium	08/17/17 10:38 AM	Reported
21	N025493-002AMS	MS	1	Hexavalent Chromium	08/17/17 10:48 AM	Reported
22	N025493-003A	SAMP	1	Hexavalent Chromium	08/17/17 10:57 AM	Reported
23	N025493-003AMS	MS	1	Hexavalent Chromium	08/17/17 11:07 AM	Reported
24	N025493-003ADUP	DUP	1	Hexavalent Chromium	08/17/17 11:16 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	08/17/17 11:25 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	08/17/17 11:35 AM	Reported
27	N025493-004A	SAMP	1	Hexavalent Chromium	08/17/17 11:44 AM	Reported
28	N025493-004AMS	MS	1	Hexavalent Chromium	08/17/17 11:54 AM	Reported
29	N025493-005A	SAMP	1	Hexavalent Chromium	08/17/17 12:03 PM	Reported
30	N025493-005AMS	MS	1	Hexavalent Chromium	08/17/17 12:13 PM	Reported
31	N025493-006A	SAMP	1	Hexavalent Chromium	08/17/17 12:22 PM	Reported
32	N025493-006AMS	MS	1	Hexavalent Chromium	08/17/17 12:32 PM	Reported
33	N025493-007A	SAMP	1	Hexavalent Chromium	08/17/17 12:41 PM	Reported
34	N025493-007AMS	MS	1	Hexavalent Chromium	08/17/17 12:51 PM	Reported
35	N025493-008A	SAMP	1	Hexavalent Chromium	08/17/17 1:00 PM	Reported
36	N025493-008AMS	MS	1	Hexavalent Chromium	08/17/17 1:10 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	08/17/17 1:19 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	08/17/17 1:28 PM	Reported
39	N025493-009A	SAMP	1	Hexavalent Chromium	08/17/17 1:38 PM	Reported
40	N025493-009AMS	MS	1	Hexavalent Chromium	08/17/17 1:47 PM	Reported
41	N025493-010A	SAMP	1	Hexavalent Chromium	08/17/17 1:57 PM	Reported
42	N025493-010AMS	MS	1	Hexavalent Chromium	08/17/17 2:06 PM	Reported

INJECTION LOG: 170817A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025493-011A	SAMP	1	Hexavalent Chromium	08/17/17 2:16 PM	Reported
44	N025493-011AMS	MS	1	Hexavalent Chromium	08/17/17 2:25 PM	Reported
45	N025493-012A	SAMP	1	Hexavalent Chromium	08/17/17 2:35 PM	Reported
46	N025493-012AMS	MS	1	Hexavalent Chromium	08/17/17 2:44 PM	Reported
47	N025026-001A	SAMP	10	Hexavalent Chromium	08/17/17 2:54 PM	Not Reported
48	N025175-019A	SAMP	100	Hexavalent Chromium	08/17/17 3:03 PM	Not Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	08/17/17 3:12 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	08/17/17 3:22 PM	Reported
51	N022631-001A	SAMP	5	Hexavalent Chromium	08/17/17 3:31 PM	Not Reported
52	N022736-019A	SAMP	100	Hexavalent Chromium	08/17/17 3:40 PM	Not Reported
53	N025026-001AREP	DUP	10	Hexavalent Chromium	08/17/17 3:53 PM	Not Reported
54	N025026-001A	SAMP	5	Hexavalent Chromium	08/17/17 4:04 PM	Reported
55	N025026-001AREP	DUP	5	Hexavalent Chromium	08/17/17 4:14 PM	~~Not~~ Reported
56	N025175-019AREP	DUP	100	Hexavalent Chromium	08/17/17 4:23 PM	Not Reported
57	N025175-019A	SAMP	50	Hexavalent Chromium	08/17/17 4:33 PM	Reported
58	N025175-019AREP	DUP	50	Hexavalent Chromium	08/17/17 4:42 PM	Reported
59	N025493-013A	SAMP	1	Hexavalent Chromium	08/17/17 4:52 PM	Reported
60	N025493-013AMS	MS	1	Hexavalent Chromium	08/17/17 5:01 PM	Reported
61	CCV-5	CCV	1	Hexavalent Chromium	08/17/17 5:11 PM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	08/17/17 5:20 PM	Reported
63	N025493-014A	SAMP	1	Hexavalent Chromium	08/17/17 5:29 PM	Reported
64	N025493-014AMS	MS	1	Hexavalent Chromium	08/17/17 5:39 PM	Reported
65	N025493-015A	SAMP	1	Hexavalent Chromium	08/17/17 5:48 PM	Reported
66	N025493-015AMS	MS	1	Hexavalent Chromium	08/17/17 5:58 PM	Reported
67	N025493-016A	SAMP	1	Hexavalent Chromium	08/17/17 6:07 PM	Reported
68	N025493-016AMS	MS	1	Hexavalent Chromium	08/17/17 6:17 PM	Reported
69	N025493-017A	SAMP	1	Hexavalent Chromium	08/17/17 6:26 PM	Reported
70	N025493-017AMS	MS	1	Hexavalent Chromium	08/17/17 6:36 PM	Reported
71	N025396-009A	SAMP	1	Hexavalent Chromium	08/17/17 6:45 PM	Not Reported
72	N025396-009AMS	MS	1	Hexavalent Chromium	08/17/17 6:55 PM	Not Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	08/17/17 7:04 PM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	08/17/17 7:14 PM	Reported

rba 8/22/2017

8/30/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170817A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**18/Aug/17 10:14:31**
No. of Injections:	**77**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/17/2017 08:47	Finished	
11	BLANK	2	1000	Unknown		08/17/2017 08:58	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/17/2017 09:07	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/17/2017 09:16	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/17/2017 09:26	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/17/2017 09:35	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/17/2017 09:47	Finished	LCS, IWST-170622D
17	N025493-001A,SAMF	9	1000	Unknown		08/17/2017 10:08	Finished	SAMP,10mL
18	N025493-001AMS,MS	10	1000	Unknown		08/17/2017 10:19	Finished	MS (1ppb), IWST-170622D,10
19	N025493-001AMSD,M	11	1000	Unknown		08/17/2017 10:29	Finished	MSD (1ppb), IWST-170622D,1(
20	N025493-002A,SAMF	12	1000	Unknown		08/17/2017 10:38	Finished	SAMP,10mL
21	N025493-002AMS,MS	13	1000	Unknown		08/17/2017 10:48	Finished	MS (1ppb), IWST-170622D,10
22	N025493-003A,SAMF	14	1000	Unknown		08/17/2017 10:57	Finished	SAMP,10mL
23	N025493-003AMS,MS	15	1000	Unknown		08/17/2017 11:07	Finished	MS (1ppb), IWST-170622D,10
24	N0254793-003ADUP,	16	1000	Unknown		08/17/2017 11:16	Finished	DUP,10mL
25	CCV-2,CCV1,1,	17	1000	Unknown		08/17/2017 11:25	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	18	1000	Unknown		08/17/2017 11:35	Finished	CCB R170724A
27	N025493-004A,SAMF	19	1000	Unknown		08/17/2017 11:44	Finished	SAMP,10mL
28	N025493-004AMS,MS	20	1000	Unknown		08/17/2017 11:54	Finished	MS (1ppb), IWST-170622D,10
29	N025493-005A,SAMF	21	1000	Unknown		08/17/2017 12:03	Finished	SAMP,10mL
30	N025493-005AMS,MS	22	1000	Unknown		08/17/2017 12:13	Finished	MS (1ppb), IWST-170622D,10
31	N025493-006A,SAMF	23	1000	Unknown		08/17/2017 12:22	Finished	SAMP,10mL
32	N025493-006AMS,MS	24	1000	Unknown		08/17/2017 12:32	Finished	MS (1ppb), IWST-170622D,10
33	N025493-007A,SAMF	25	1000	Unknown		08/17/2017 12:41	Finished	SAMP,10mL
34	N025493-007AMS,MS	26	1000	Unknown		08/17/2017 12:51	Finished	MS (1ppb), IWST-170622D,10
35	N025493-008A,SAMF	27	1000	Unknown		08/17/2017 13:00	Finished	SAMP,10mL
36	N025493-008AMS,MS	28	1000	Unknown		08/17/2017 13:10	Finished	MS (1ppb), IWST-170622D,10
37	CCV-3,CCV,1,	29	1000	Unknown		08/17/2017 13:19	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		08/17/2017 13:28	Finished	CCB R170724A
39	N025493-009A,SAMF	31	1000	Unknown		08/17/2017 13:38	Finished	SAMP,10mL
40	N025493-009AMS,MS	32	1000	Unknown		08/17/2017 13:47	Finished	MS (1ppb), IWST-170622D,10
41	N025493-010A,SAMF	33	1000	Unknown		08/17/2017 13:57	Finished	SAMP,10mL
42	N025493-010AMS,MS	34	1000	Unknown		08/17/2017 14:06	Finished	MS (1ppb), IWST-170622D,10
43	N025493-011A,SAMF	35	1000	Unknown		08/17/2017 14:16	Finished	SAMP,10mL
44	N025493-011AMS,MS	36	1000	Unknown		08/17/2017 14:25	Finished	MS (1ppb), IWST-170622D,10
45	N025493-012A,SAMF	37	1000	Unknown		08/17/2017 14:35	Finished	SAMP,10mL
46	N025493-012AMS,MS	38	1000	Unknown		08/17/2017 14:44	Finished	MS (1ppb), IWST-170622D,10
47	N025026-001A,SAMF	39	1000	Unknown		08/17/2017 14:54	Finished	SAMP,1>10mL
48	N025175-019A,SAMF	40	1000	Unknown		08/17/2017 15:03	Finished	SAMP,0.1>10mL
49	CCV-4,CCV1,1,	41	1000	Unknown		08/17/2017 15:12	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	42	1000	Unknown		08/17/2017 15:22	Finished	CCB R170724A
51	N022631-001A,SAMF	43	1000	Unknown		08/17/2017 15:31	Finished	SAMP,2>10mL
52	N022736-019A,SAMF	44	1000	Unknown		08/17/2017 15:40	Finished	SAMP,0.1>10mL
53	N025026-001AREP,D	1	1000	Unknown		08/17/2017 15:53	Finished	REP,1>10mL
54	N025026-001A,SAMF	2	1000	Unknown		08/17/2017 16:04	Finished	SAMP,2>10mL
55	N025026-001AREP,D	3	1000	Unknown		08/17/2017 16:14	Finished	REP,2>10mL
56	N025175-019AREP,D	4	1000	Unknown		08/17/2017 16:23	Finished	REP,0.1>10mL
57	N025175-019A,SAMF	5	1000	Unknown		08/17/2017 16:33	Finished	SAMP,0.2>10mL
58	N025175-019AREP,D	6	1000	Unknown		08/17/2017 16:42	Finished	REP,0.2>10mL
59	N025493-013A,SAMF	7	1000	Unknown		08/17/2017 16:52	Finished	SAMP,10mL
60	N025493-013AMS,MS	8	1000	Unknown		08/17/2017 17:01	Finished	MS (1ppb), IWST-170622D,10

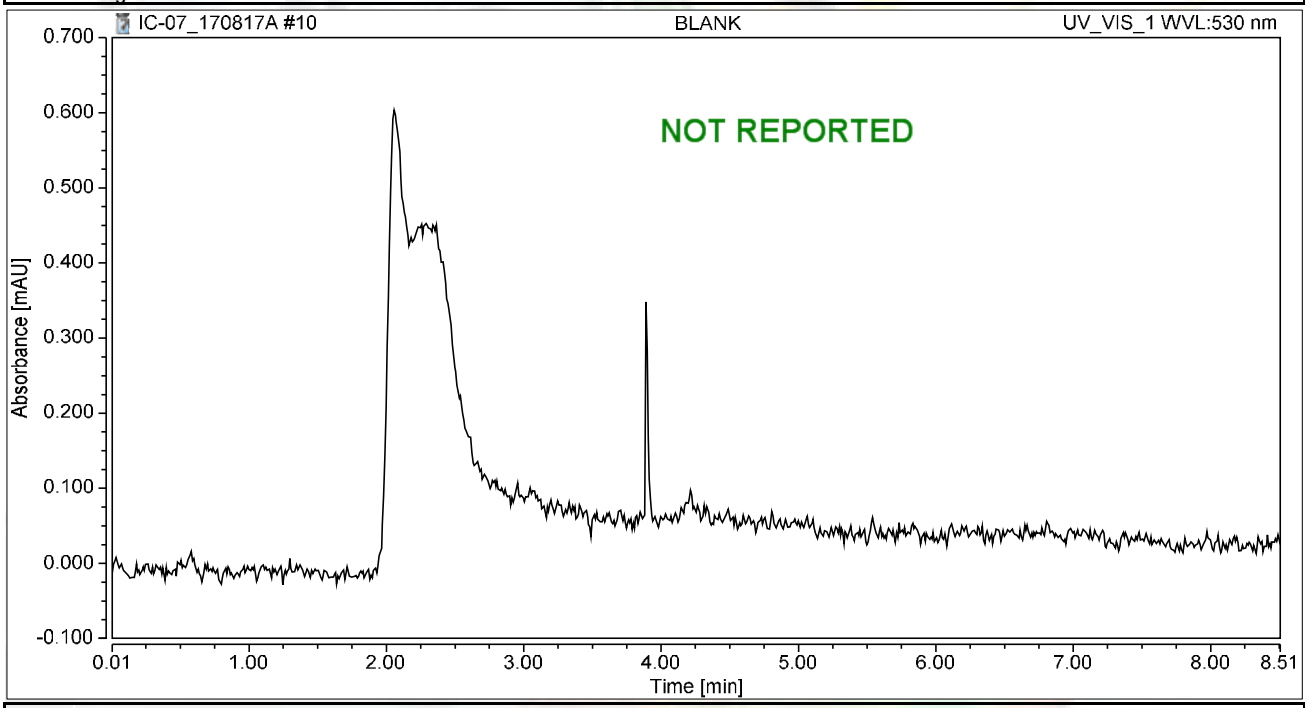
61	CCV-5,CCV,1,	9	1000	Unknown		08/17/2017 17:11	Finished	CCV @5ppb, IWST-170622C
62	CCB-5,CCB,1,	10	1000	Unknown		08/17/2017 17:20	Finished	CCB R170724A
63	N025493-014A,SAMF	11	1000	Unknown		08/17/2017 17:29	Finished	SAMP,10mL
64	N025493-014AMS,MS	12	1000	Unknown		08/17/2017 17:39	Finished	MS (1ppb), IWST-170622D,10
65	N025493-015A,SAMF	13	1000	Unknown		08/17/2017 17:48	Finished	SAMP,10mL
66	N025493-015AMS,MS	14	1000	Unknown		08/17/2017 17:58	Finished	MS (1ppb), IWST-170622D,10
67	N025493-016A,SAMF	15	1000	Unknown		08/17/2017 18:07	Finished	SAMP,10mL
68	N025493-016AMS,MS	16	1000	Unknown		08/17/2017 18:17	Finished	MS (1ppb), IWST-170622D,10
69	N025493-017A,SAMF	17	1000	Unknown		08/17/2017 18:26	Finished	SAMP,10mL
70	N025493-017AMS,MS	18	1000	Unknown		08/17/2017 18:36	Finished	MS (1ppb), IWST-170622D,10
71	N025396-009A,SAMF	19	1000	Unknown		08/17/2017 18:45	Finished	SAMP,10mL
72	N025396-009AMS,MS	20	1000	Unknown		08/17/2017 18:55	Finished	MS (1ppb), IWST-170622D,10
73	CCV-6,CCV1,1,	21	1000	Unknown		08/17/2017 19:04	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	22	1000	Unknown		08/17/2017 19:14	Finished	CCB R170724A
75	SHUTDOWN	23	1000	Unknown		08/17/2017 19:23	Finished	
76	Eluent: R170815E	24	1000	Unknown		n.a.	Finished	Eluent
77	PCR: R170815F	25	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 08:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

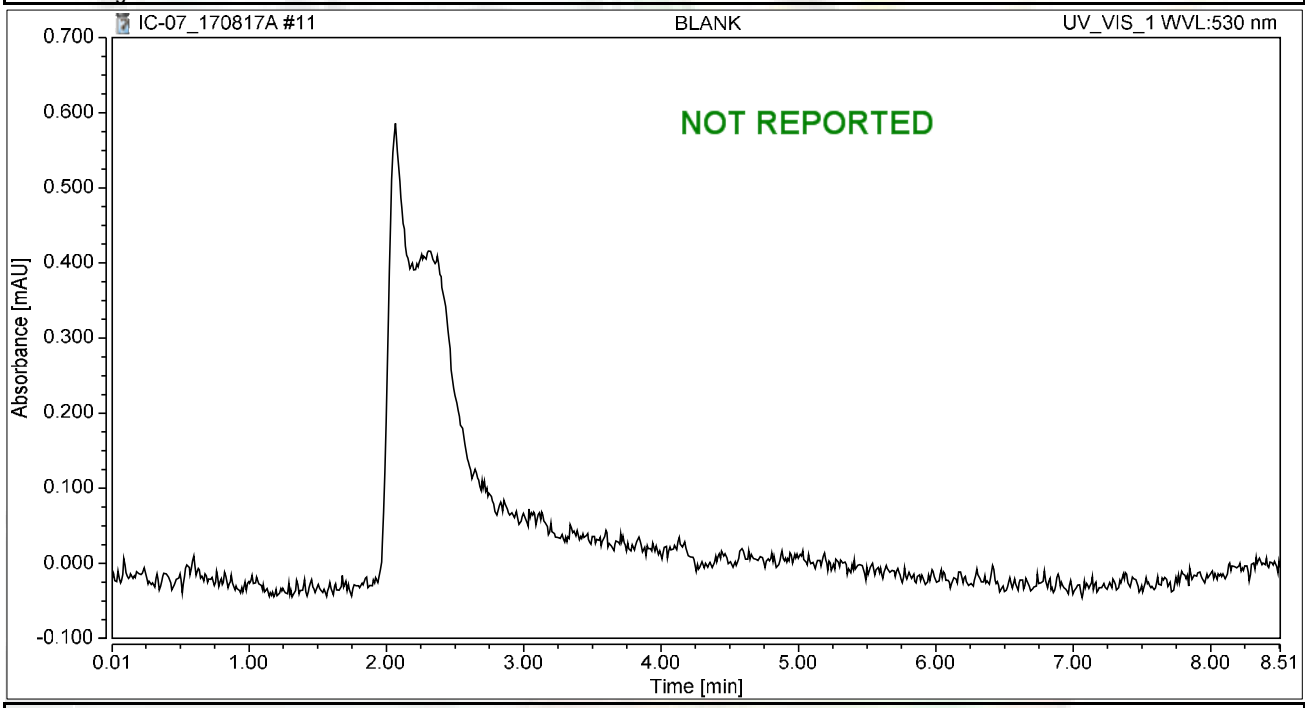
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 08:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

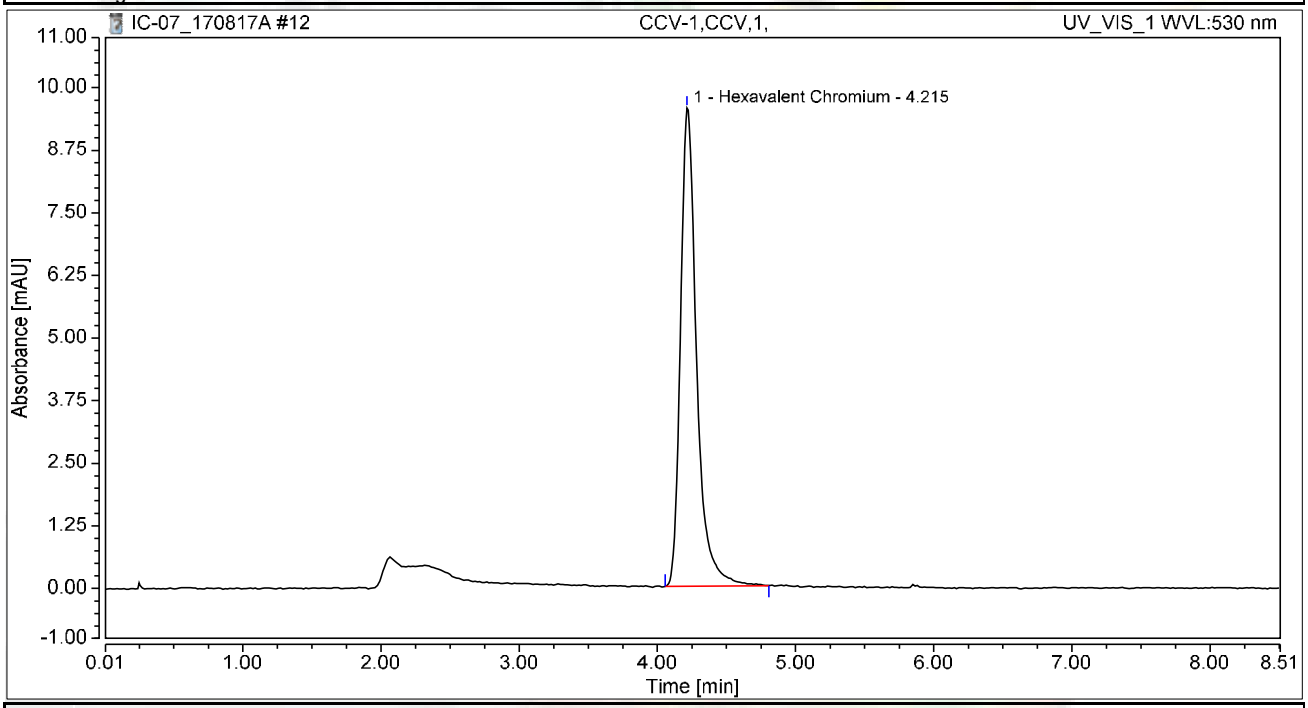
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 09:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

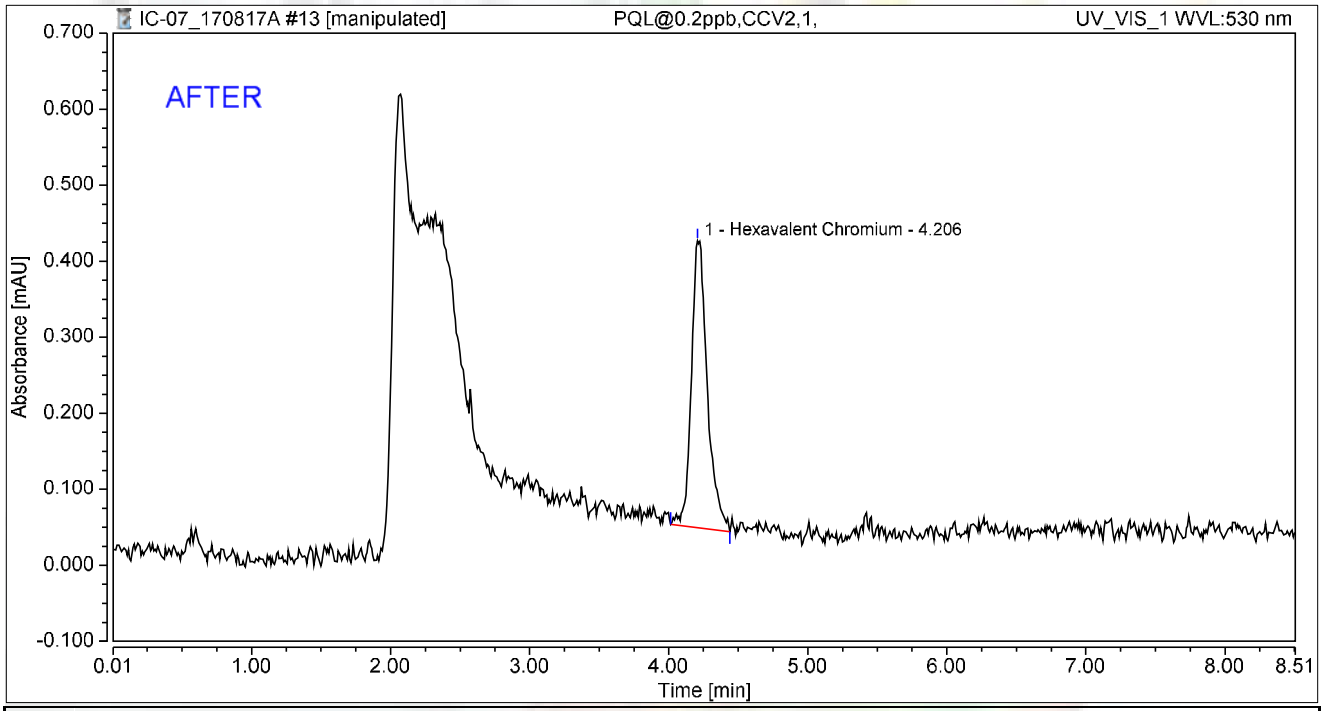
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	1.292	9.552	100.00	100.00	4.9046
Total:			**1.292**	**9.552**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 09:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.050	0.377	100.00	100.00	0.1908
Total:			**0.050**	**0.377**	**100.00**	**100.00**	

rba 8/22/2017

Reviewed by: Nancy 8/30/2017

My first report/Integration

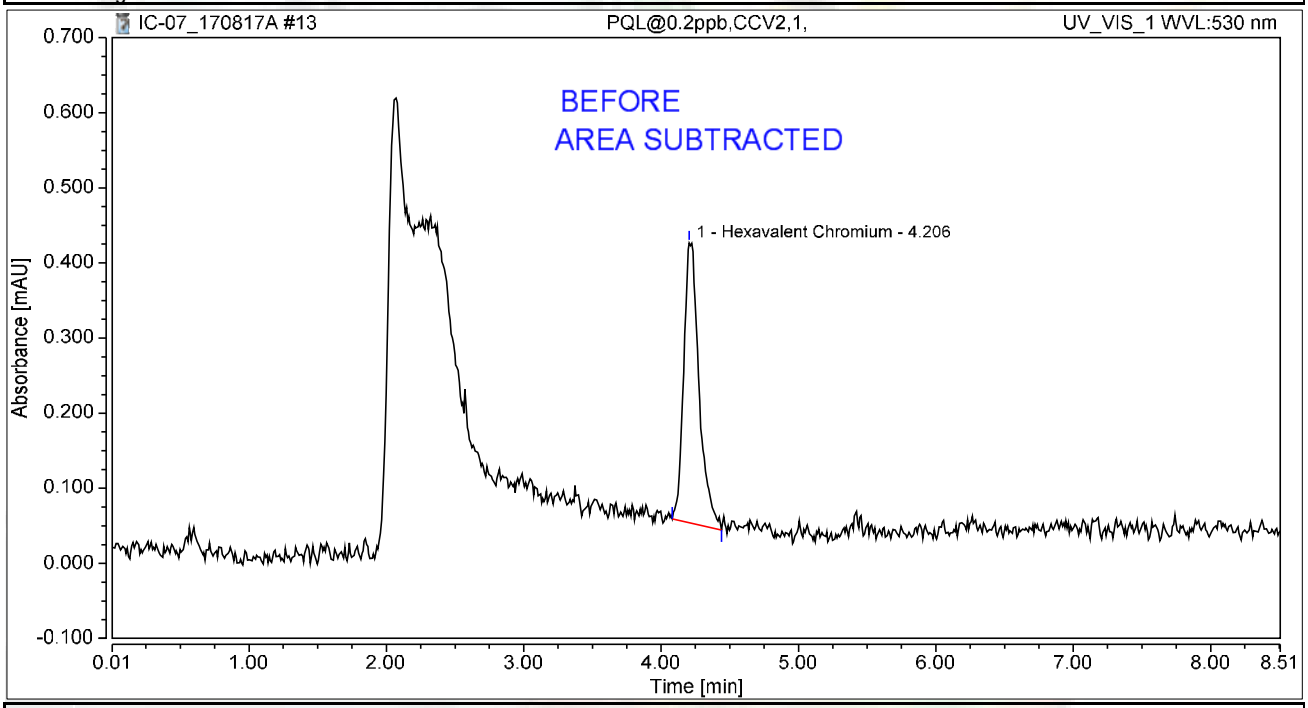
Chromeleon (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 09:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.048	0.373	100.00	100.00	0.1841
Total:			**0.048**	**0.373**	**100.00**	**100.00**	

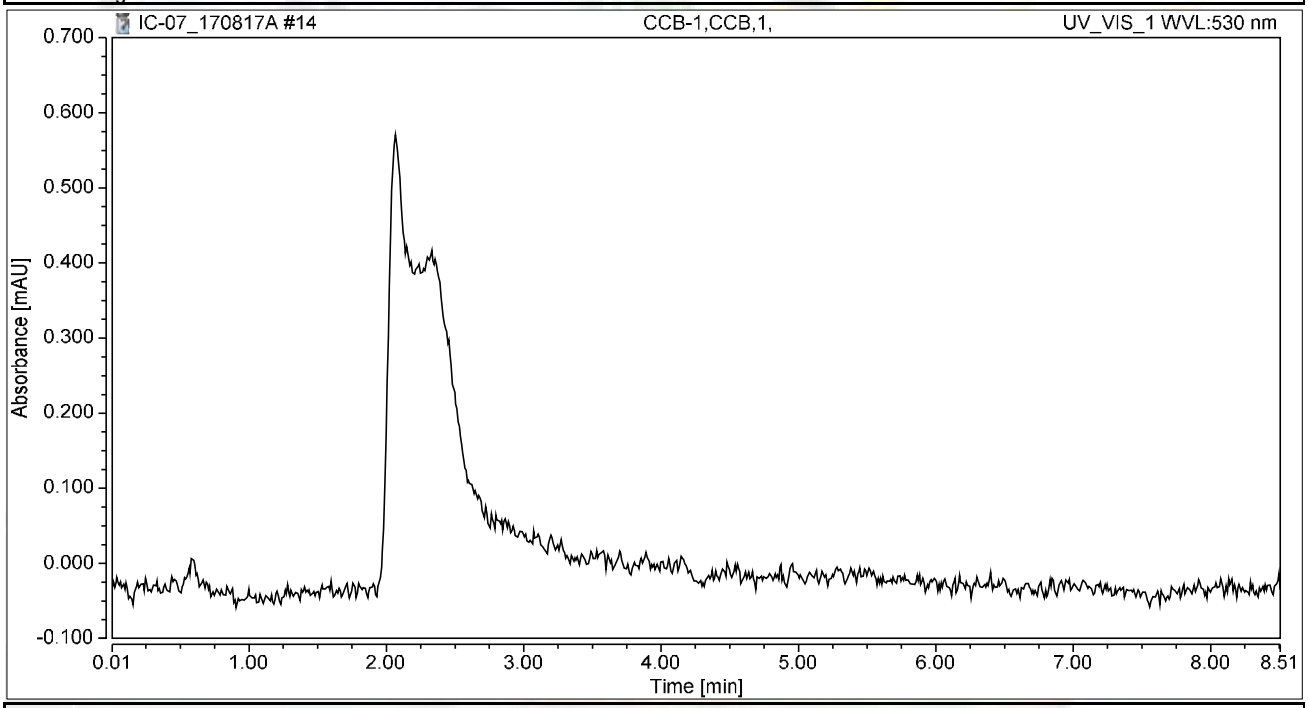
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 09:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

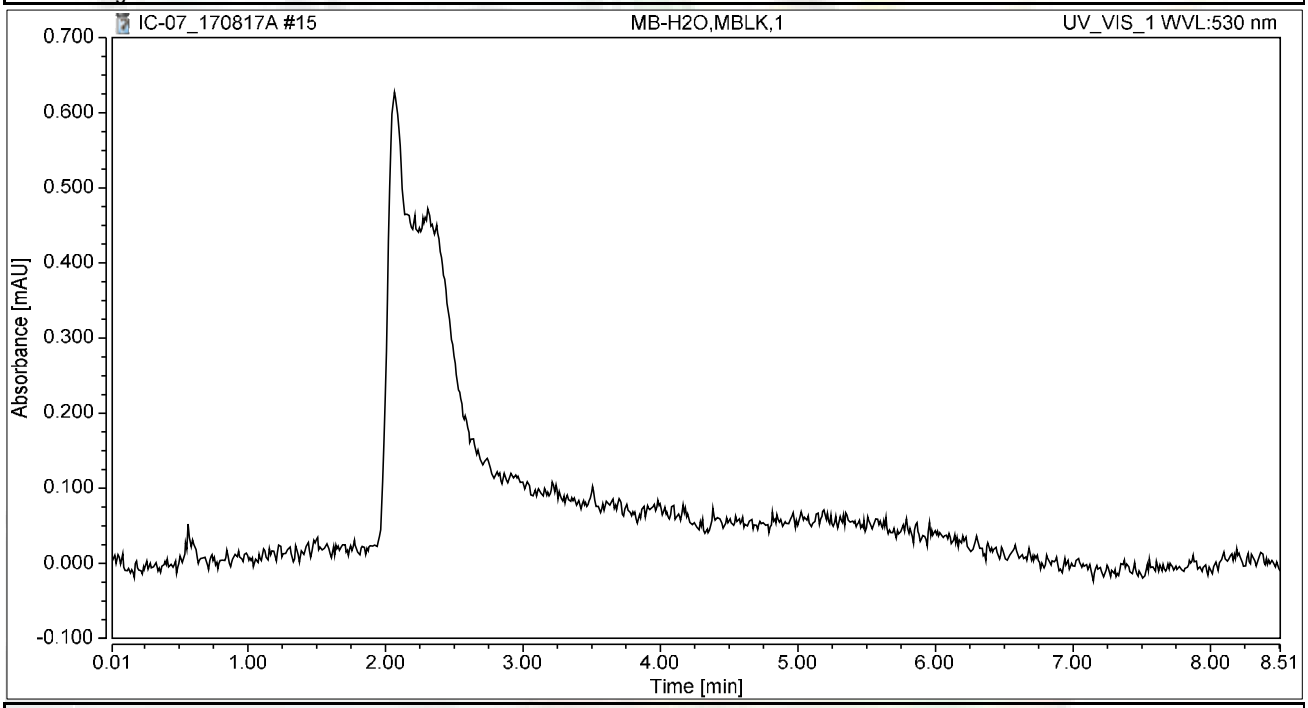
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 09:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

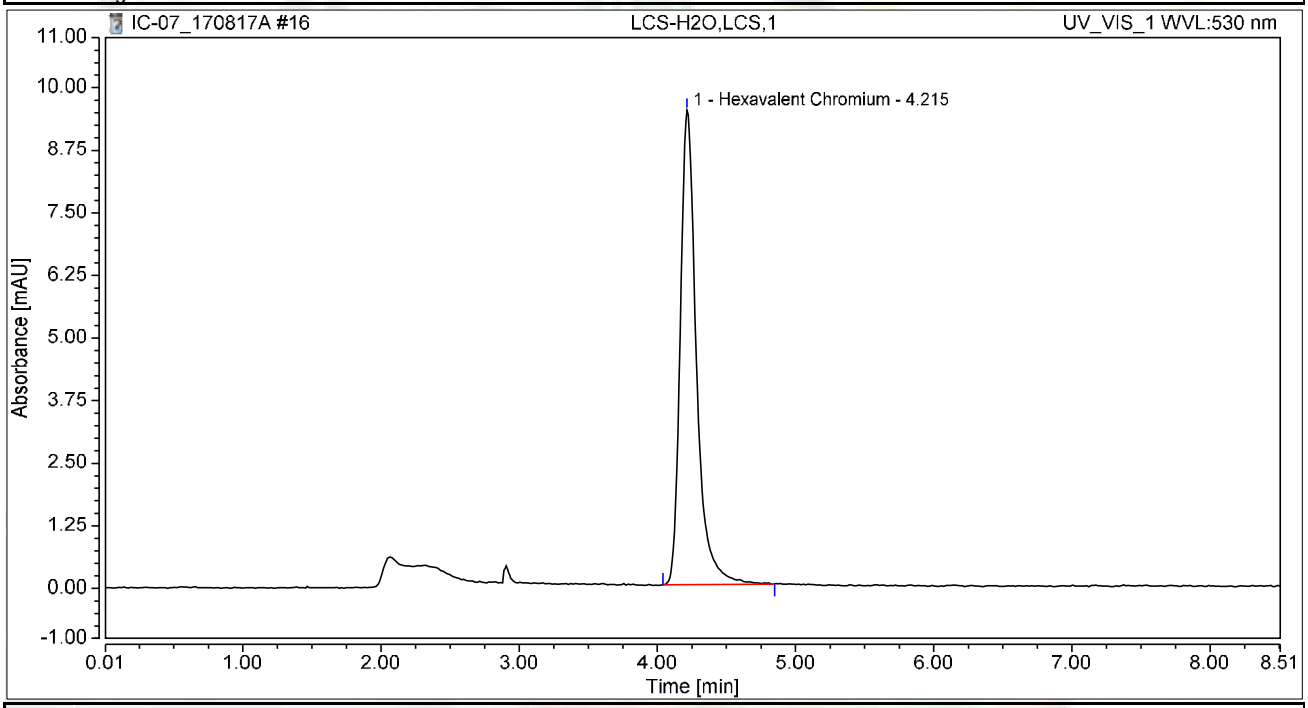
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

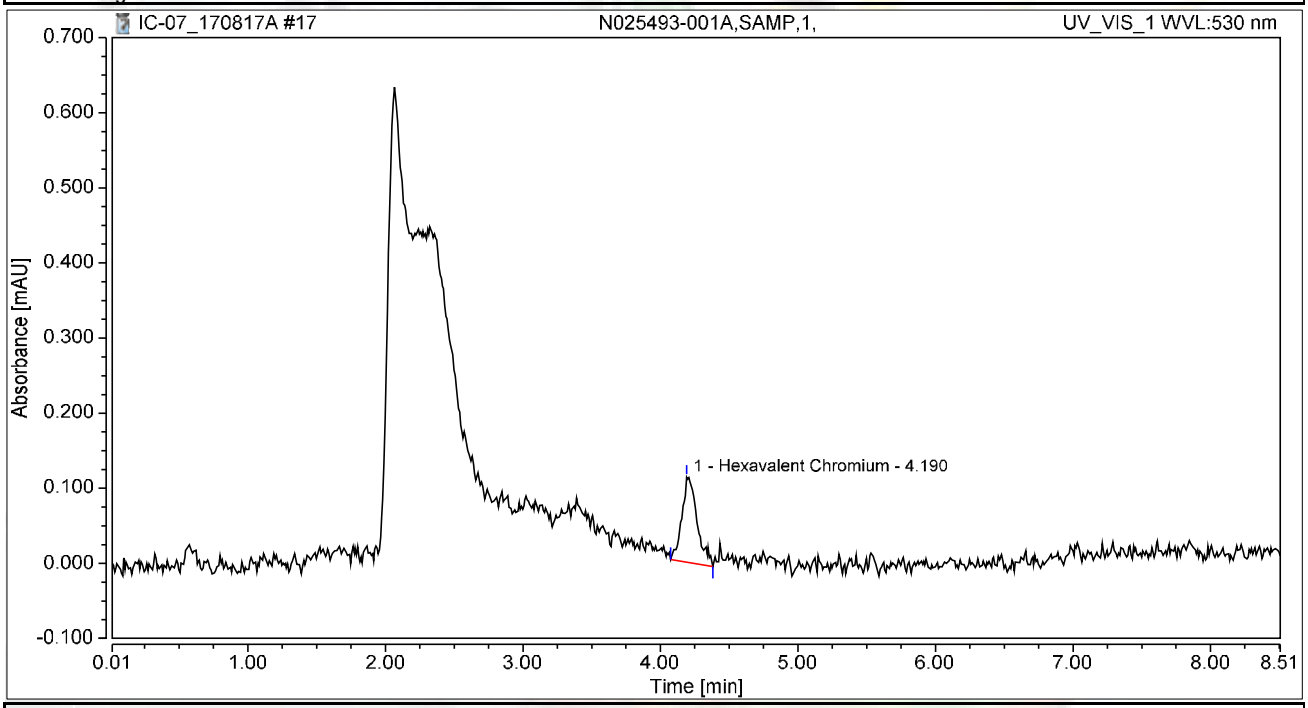
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	1.287	9.473	100.00	100.00	4.8867
Total:			**1.287**	**9.473**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

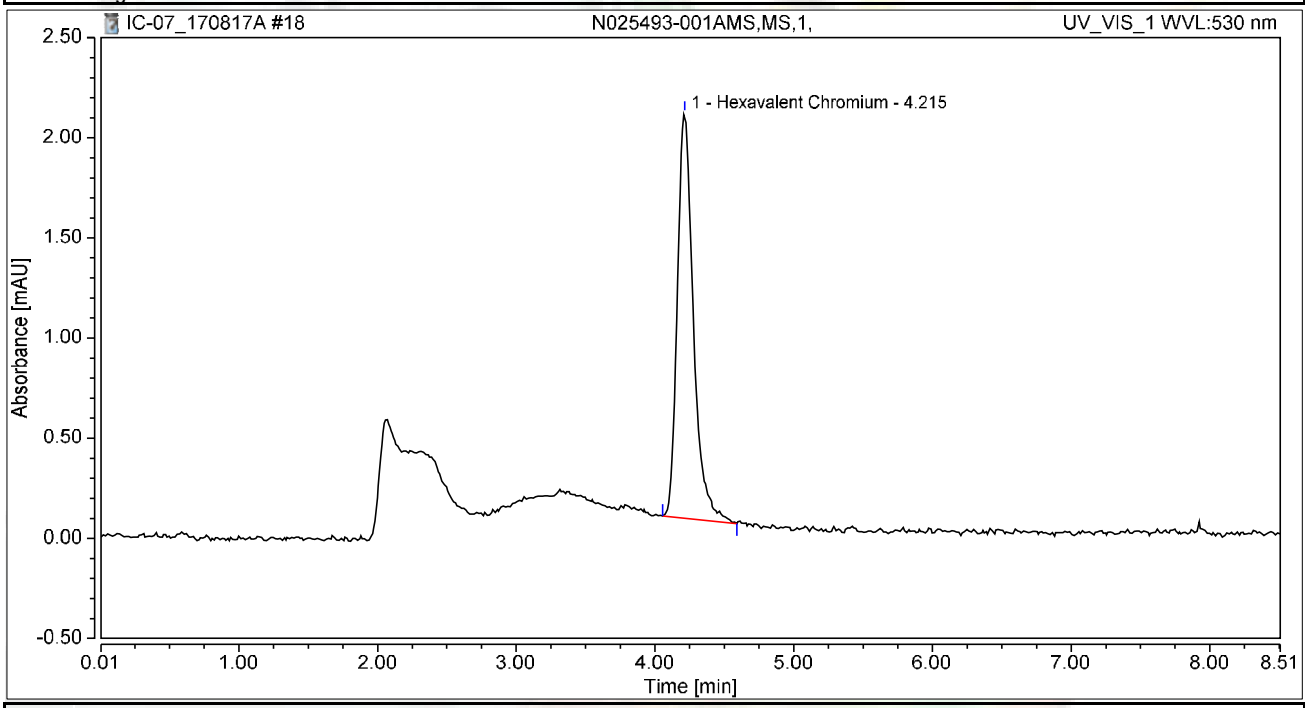
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.015	0.113	100.00	100.00	0.0552
Total:			**0.015**	**0.113**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

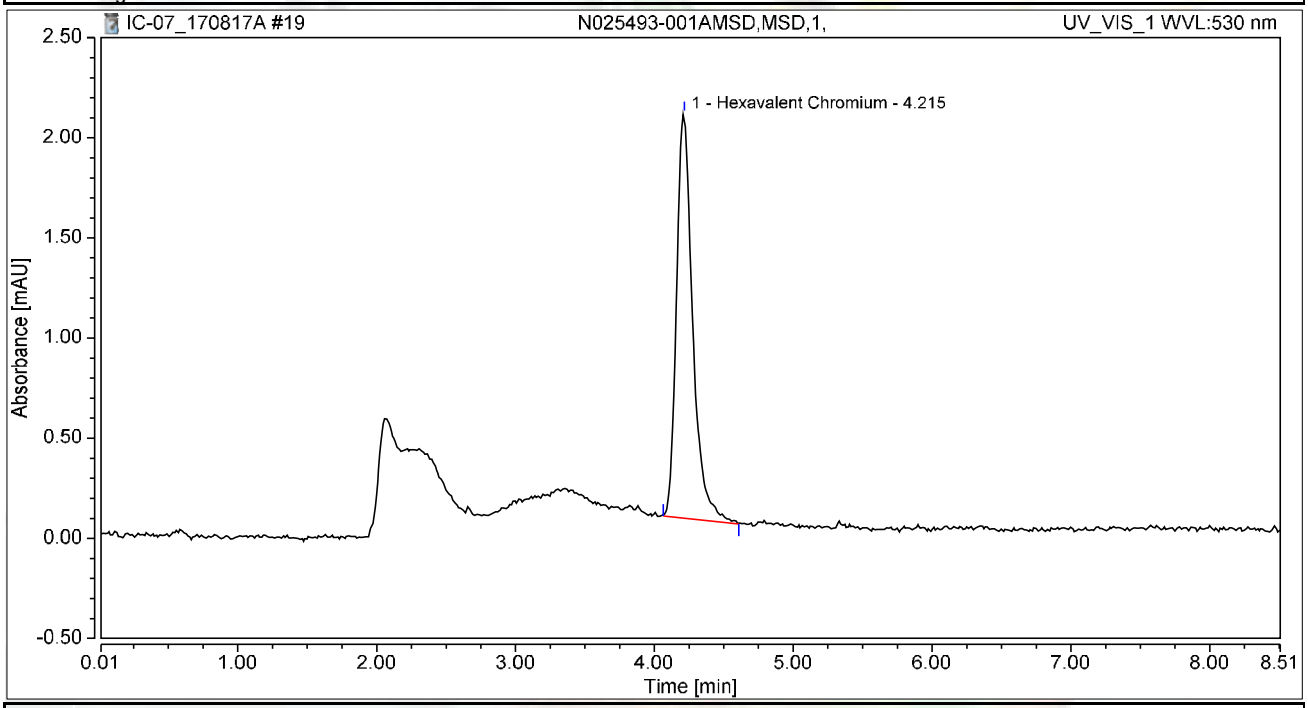
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.272	2.021	100.00	100.00	1.0312
Total:			**0.272**	**2.021**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-001AMSD,MSD,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

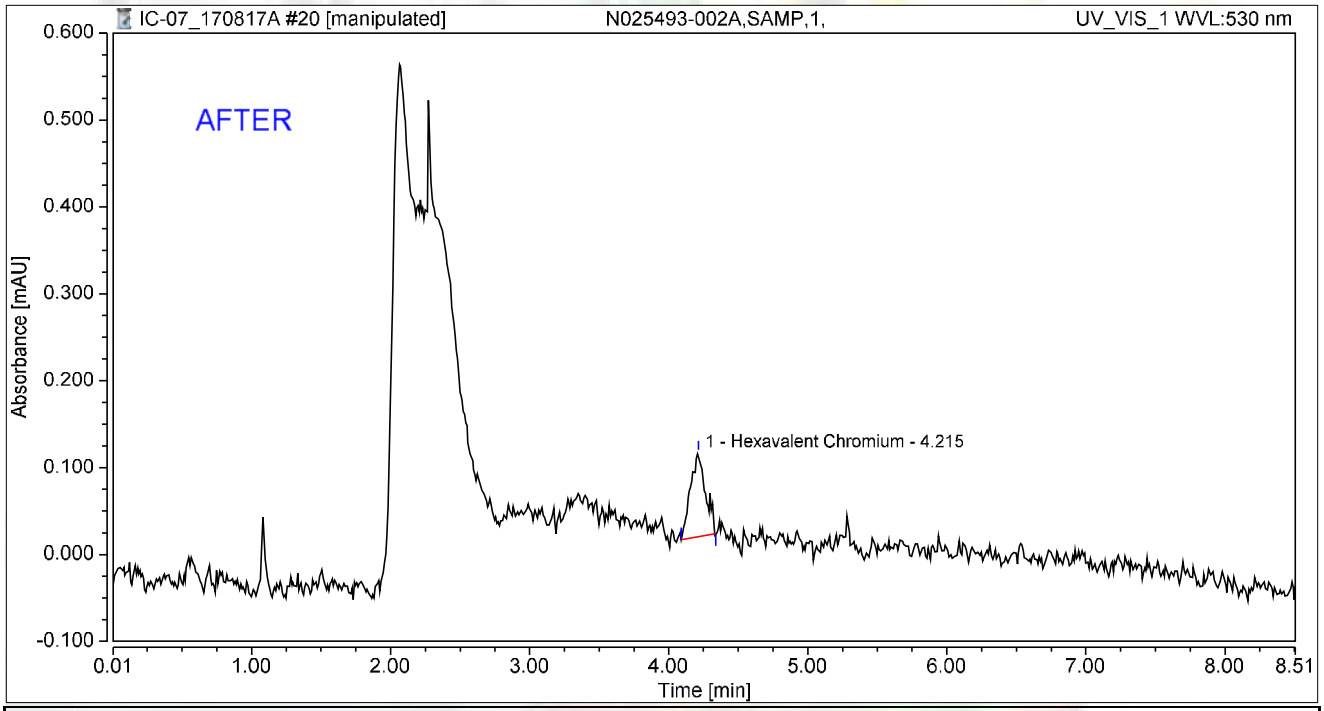
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.273	2.019	100.00	100.00	1.0382
Total:			**0.273**	**2.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.012	0.097	100.00	100.00	0.0460
Total:			**0.012**	**0.097**	**100.00**	**100.00**	

rba 8/22/2017

Reviewed by: 8/30/2017
My first report integration

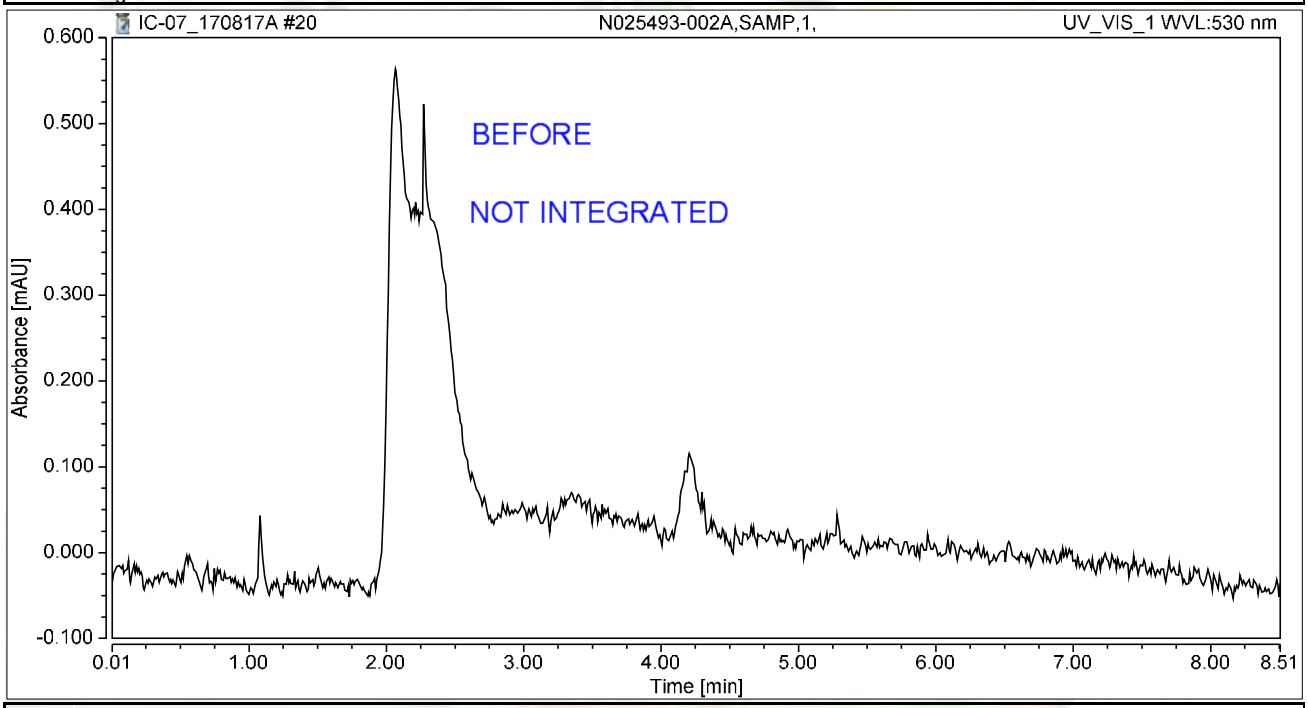
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025493-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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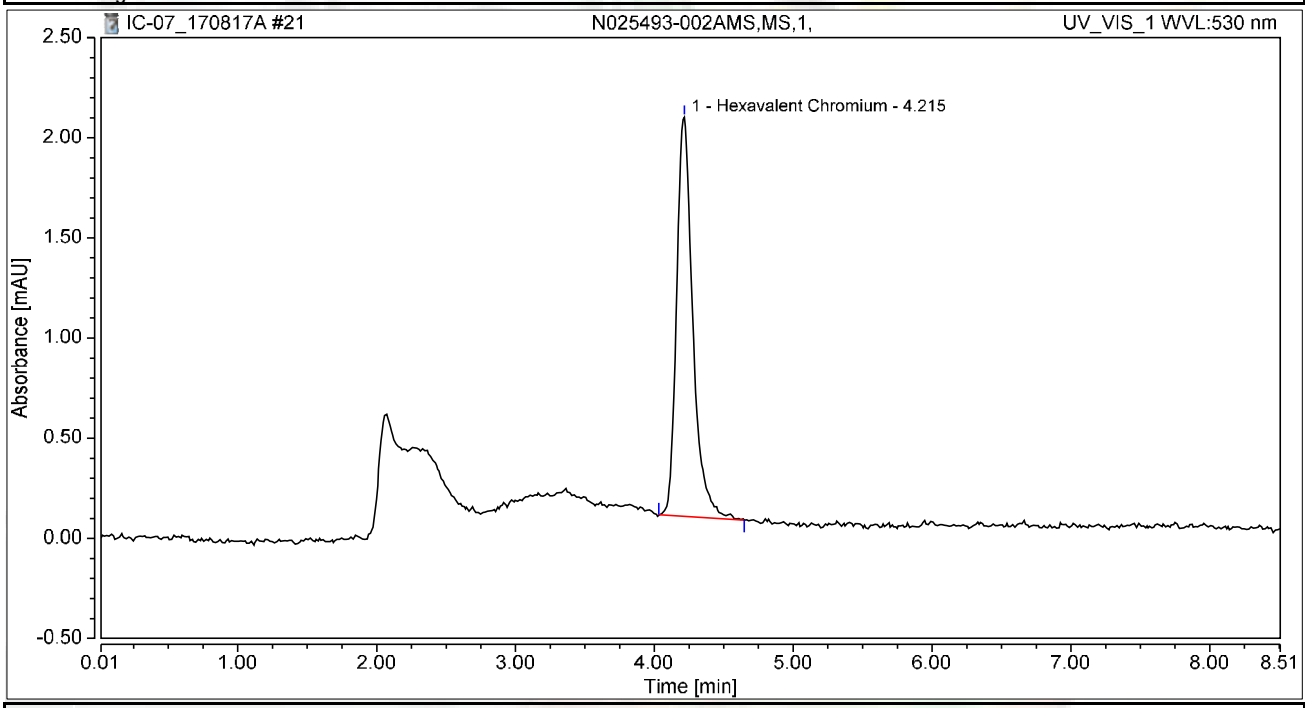
Chromatogram and Results

Injection Details

Injection Name:	**N025493-002AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

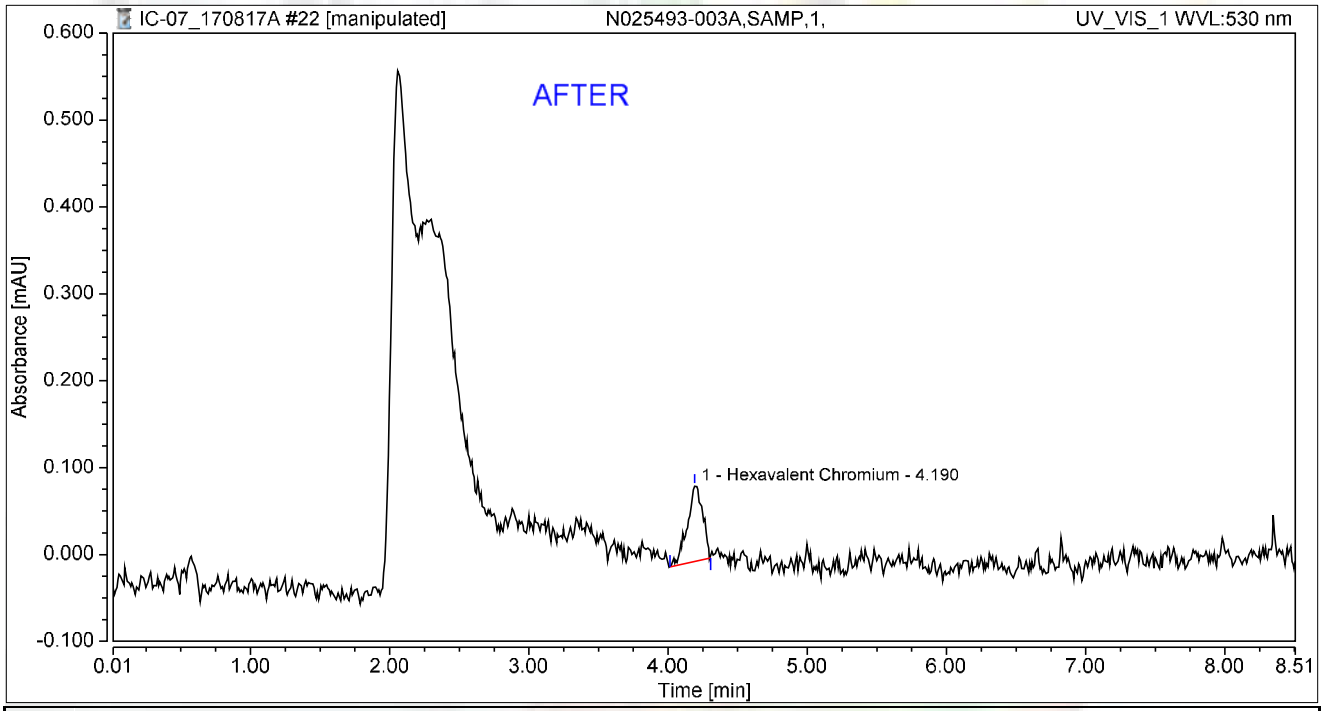
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.270	1.993	100.00	100.00	1.0265
Total:			**0.270**	**1.993**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-003A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.011	0.087	100.00	100.00	0.0415
Total:			**0.011**	**0.087**	**100.00**	**100.00**	

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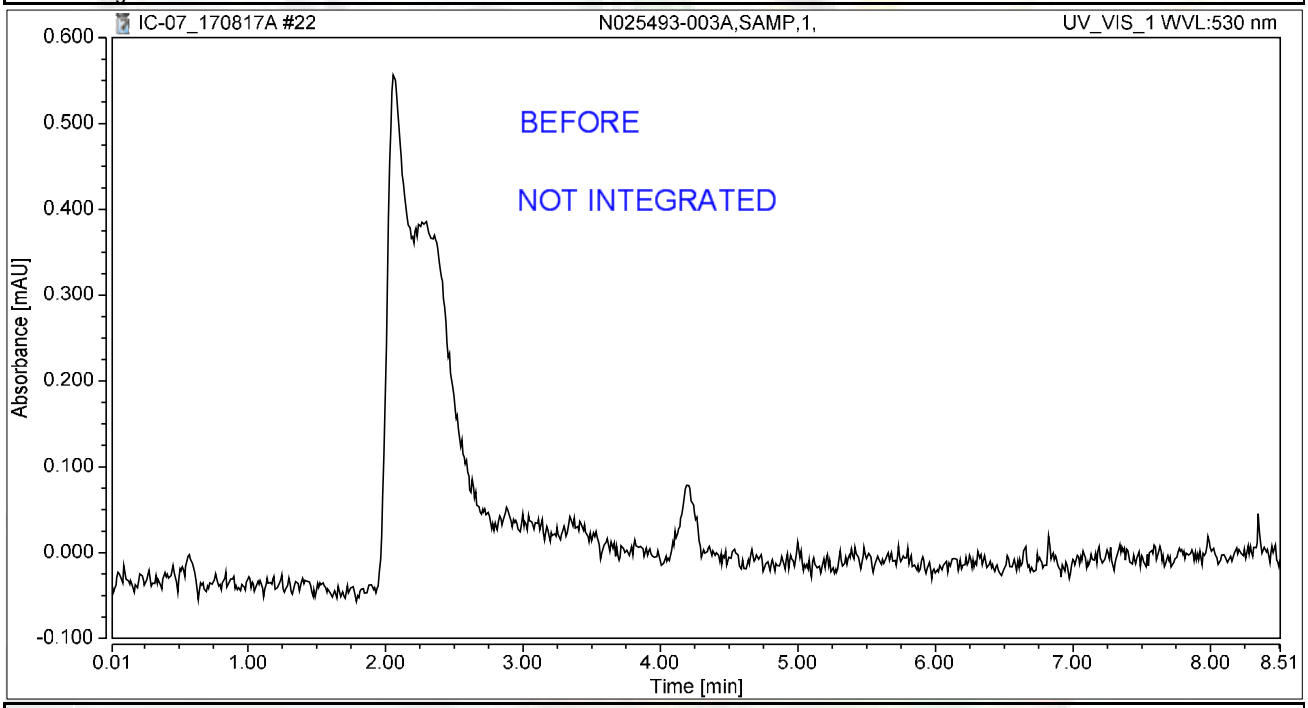
Reviewed by: 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-003A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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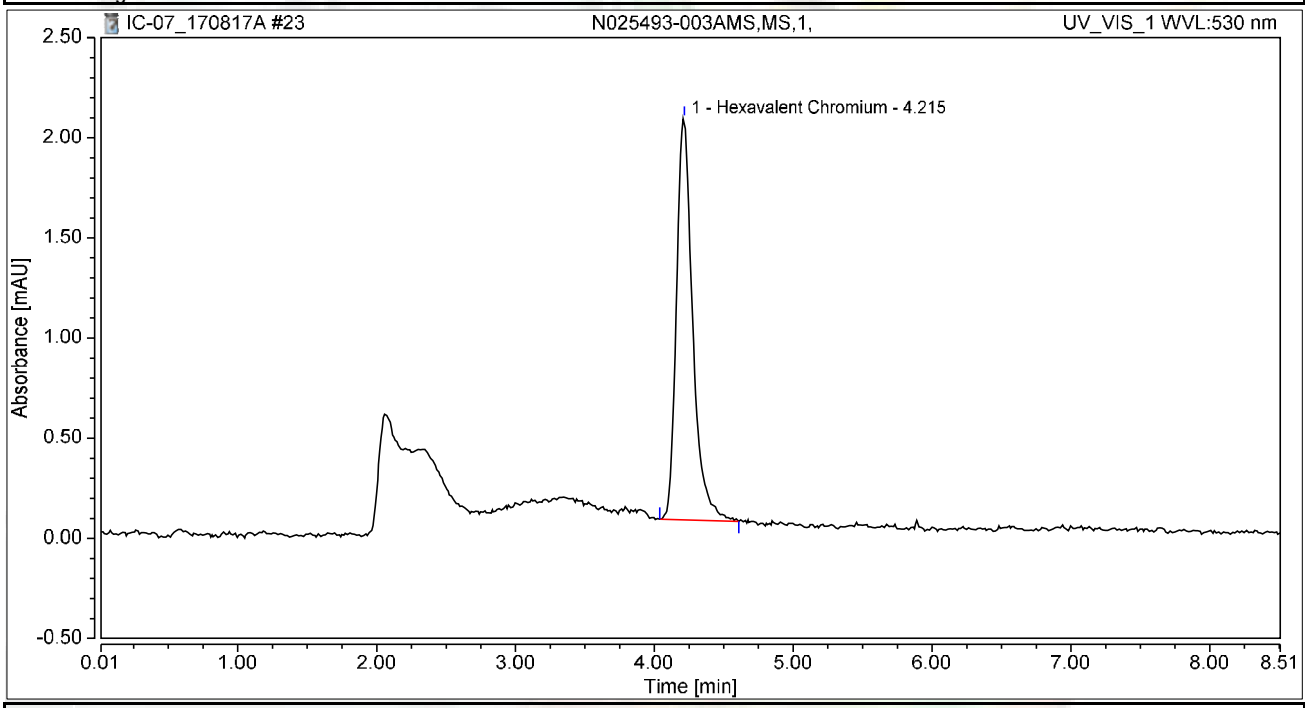
Chromatogram and Results

Injection Details

Injection Name:	**N025493-003AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

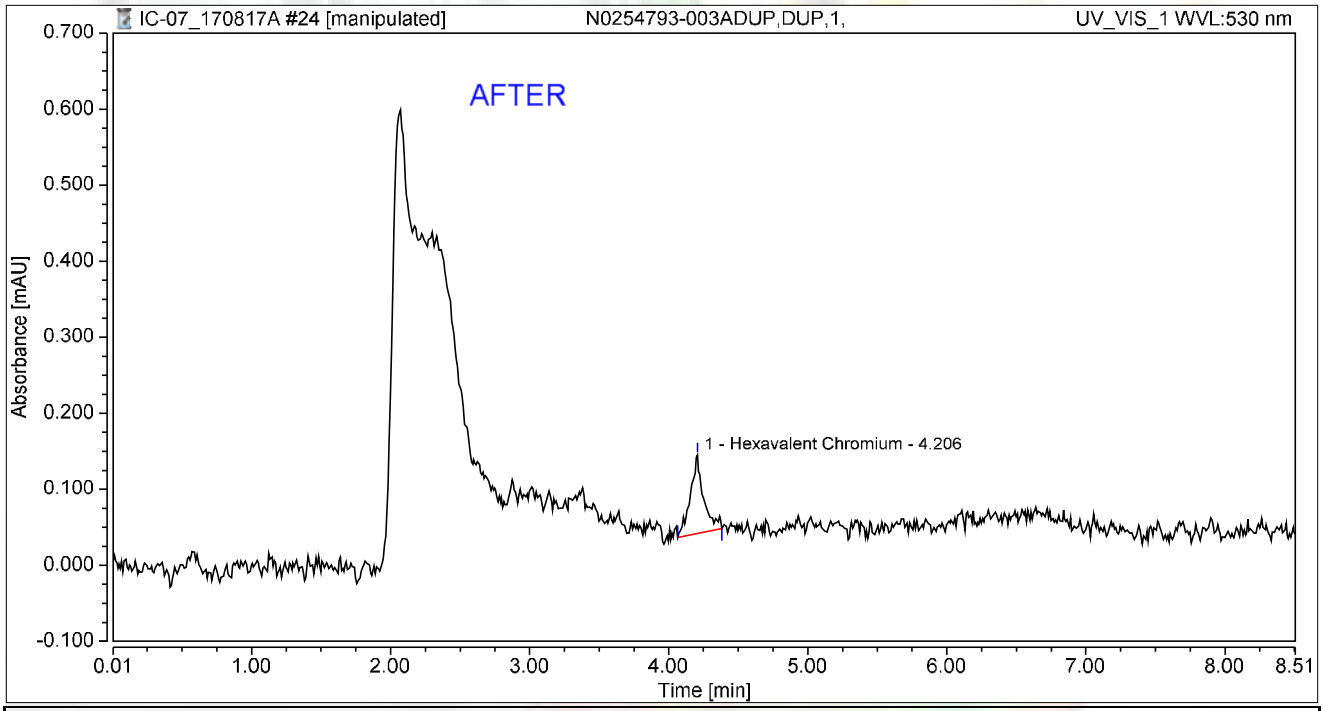
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.273	2.004	100.00	100.00	1.0361
Total:			**0.273**	**2.004**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N0254793-003ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.011	0.103	100.00	100.00	0.0434
Total:			**0.011**	**0.103**	**100.00**	**100.00**	

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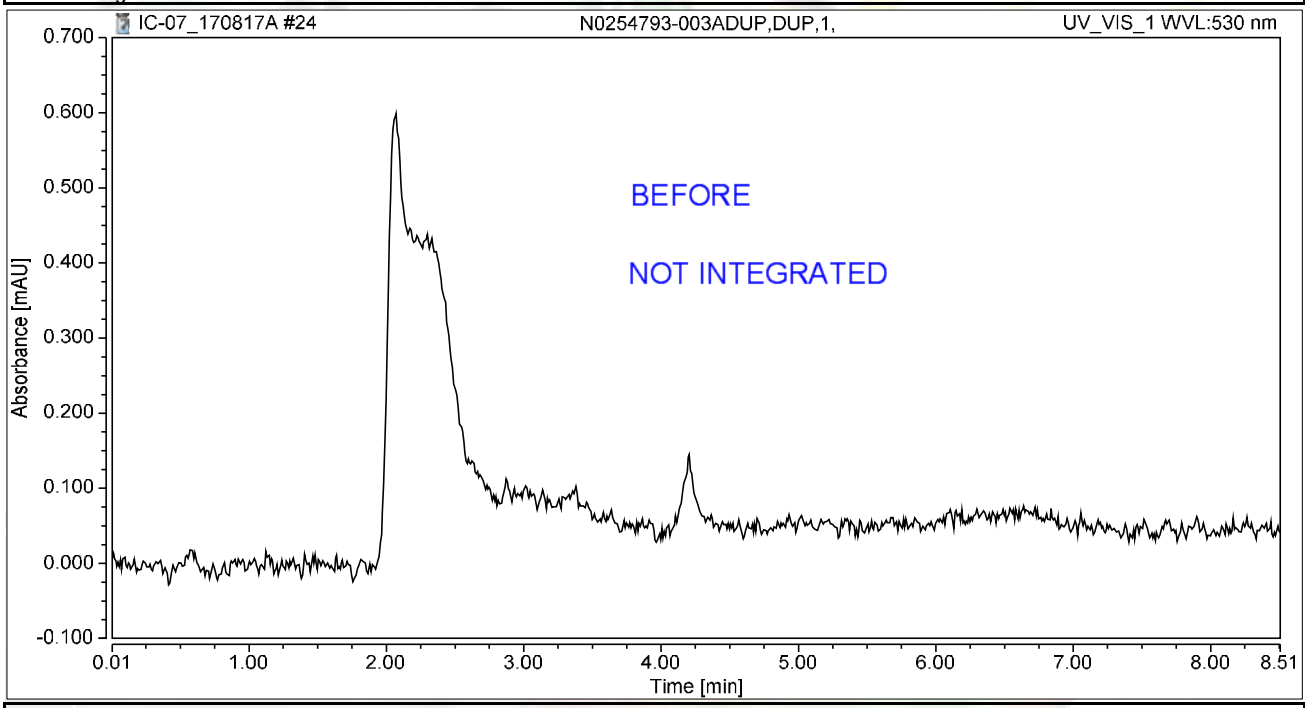
Reviewed by: 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N0254793-003ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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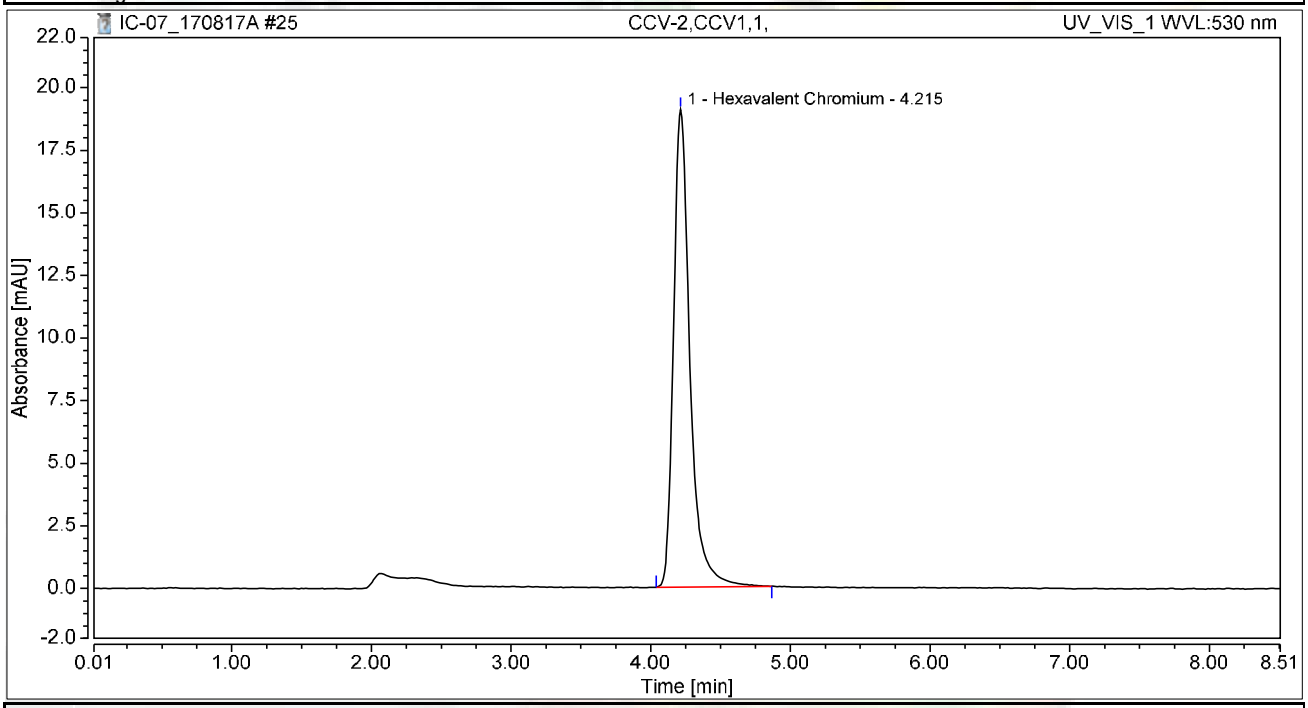
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

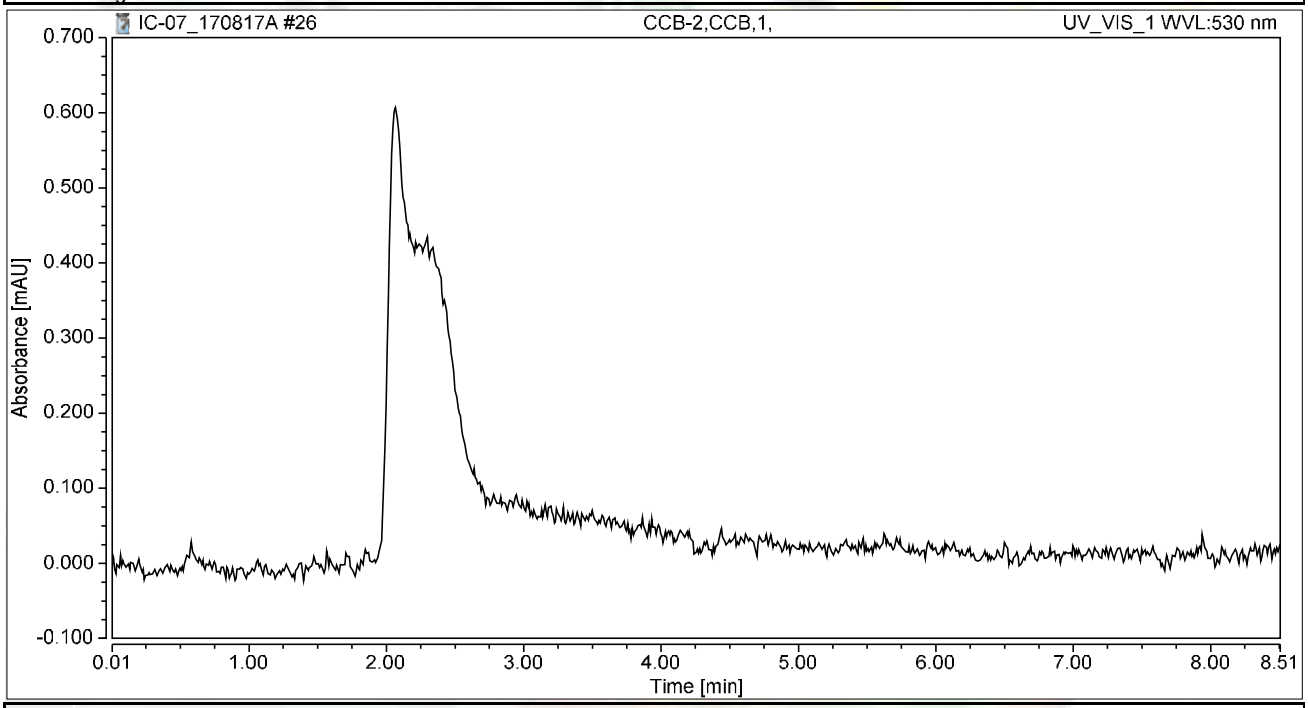
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	2.598	19.075	100.00	100.00	9.8612
Total:			**2.598**	**19.075**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

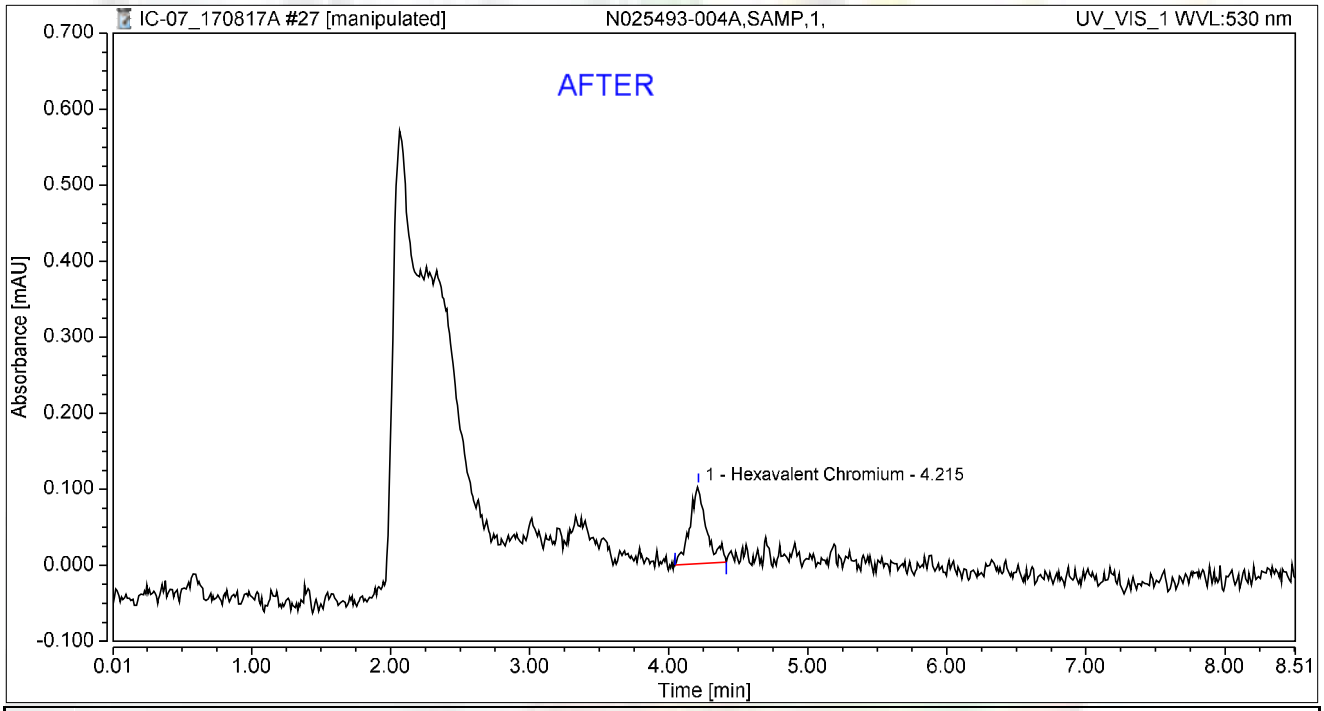
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.014	0.103	100.00	100.00	0.0538
Total:			**0.014**	**0.103**	**100.00**	**100.00**	

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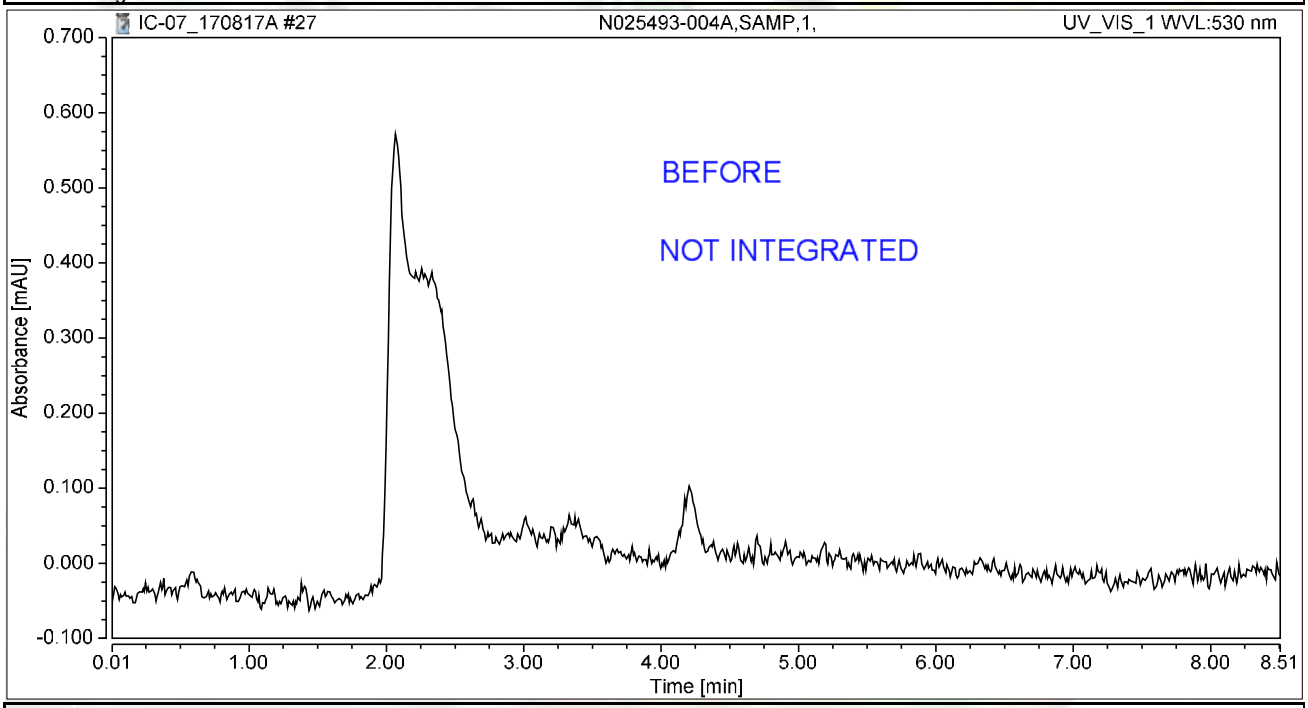
Reviewed by: Nancy 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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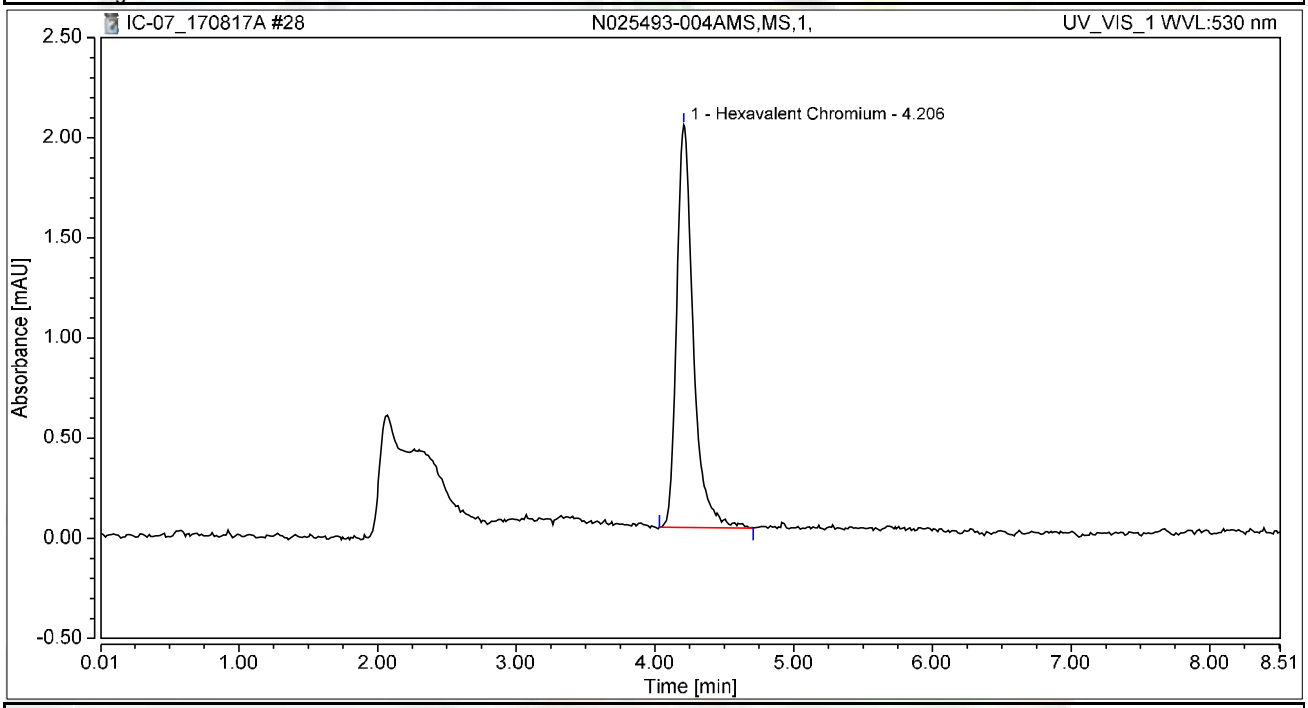
Chromatogram and Results

Injection Details

Injection Name:	**N025493-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

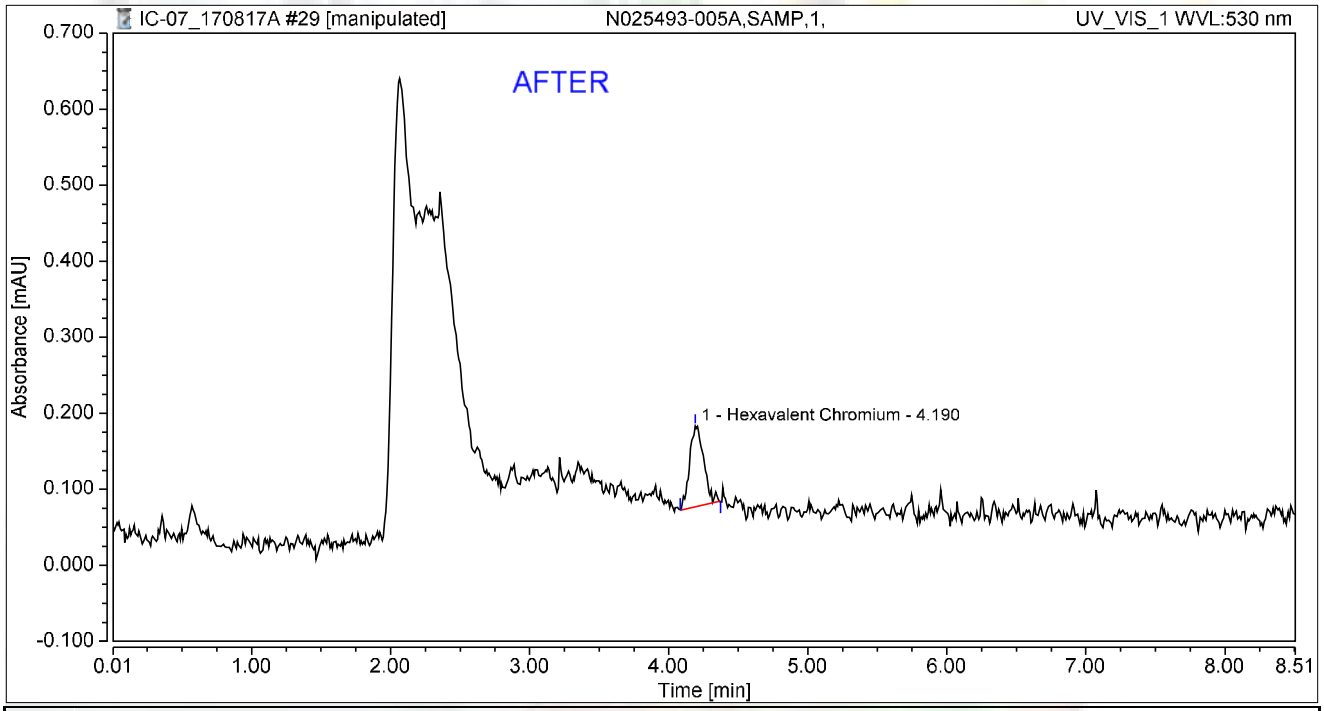
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.278	2.009	100.00	100.00	1.0567
Total:			**0.278**	**2.009**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.013	0.106	100.00	100.00	0.0477
Total:			**0.013**	**0.106**	**100.00**	**100.00**	

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Reviewed

My first report/Integration Dmcy 8/30/2017

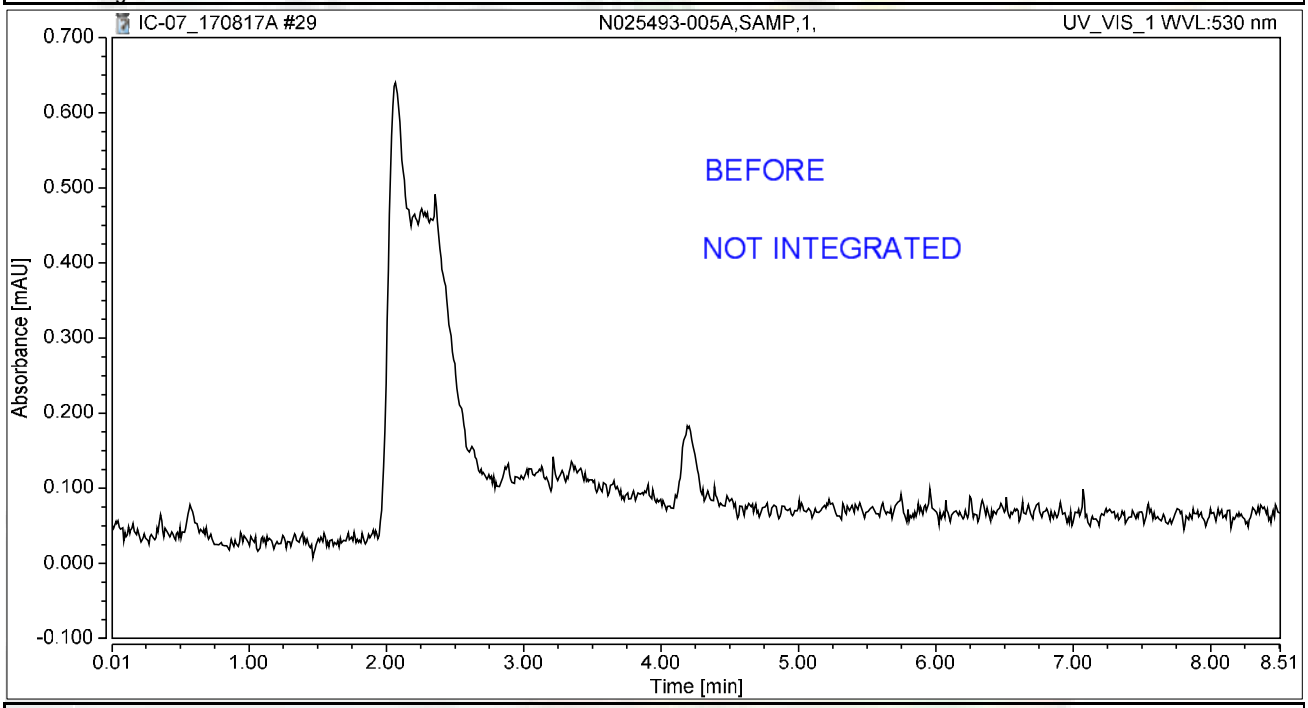
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025493-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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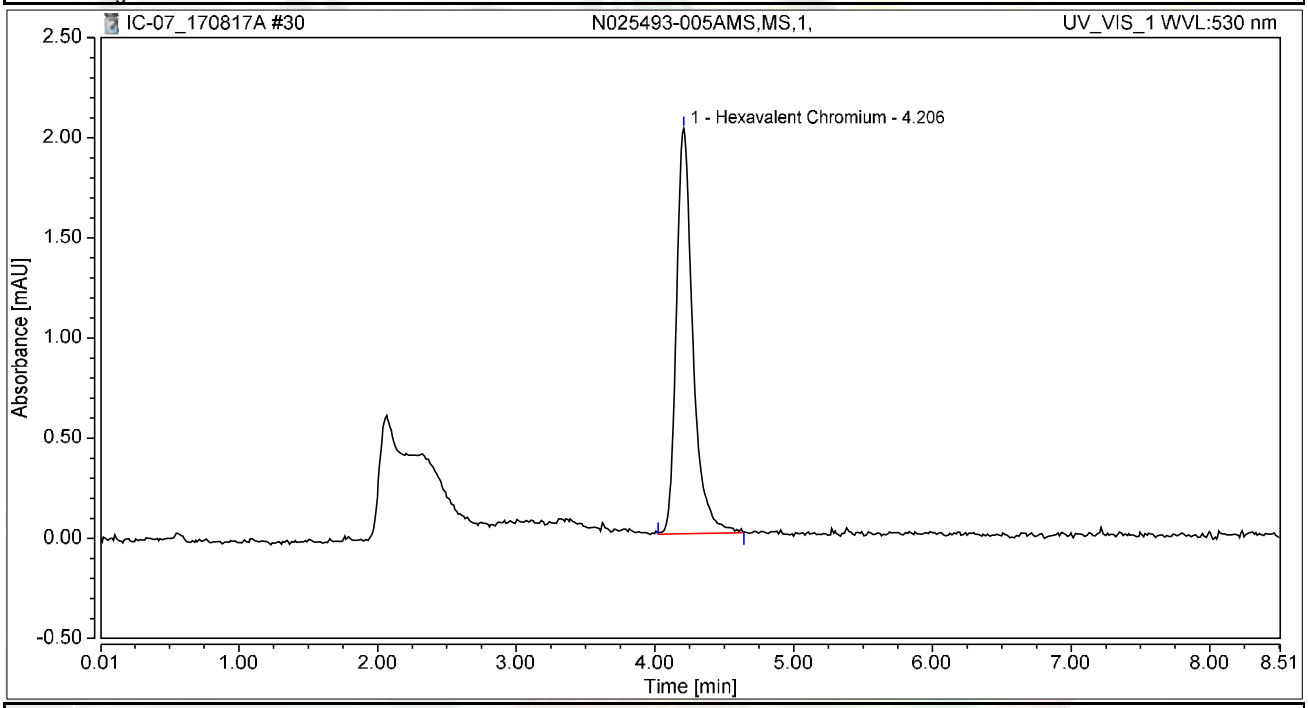
Chromatogram and Results

Injection Details

Injection Name:	**N025493-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

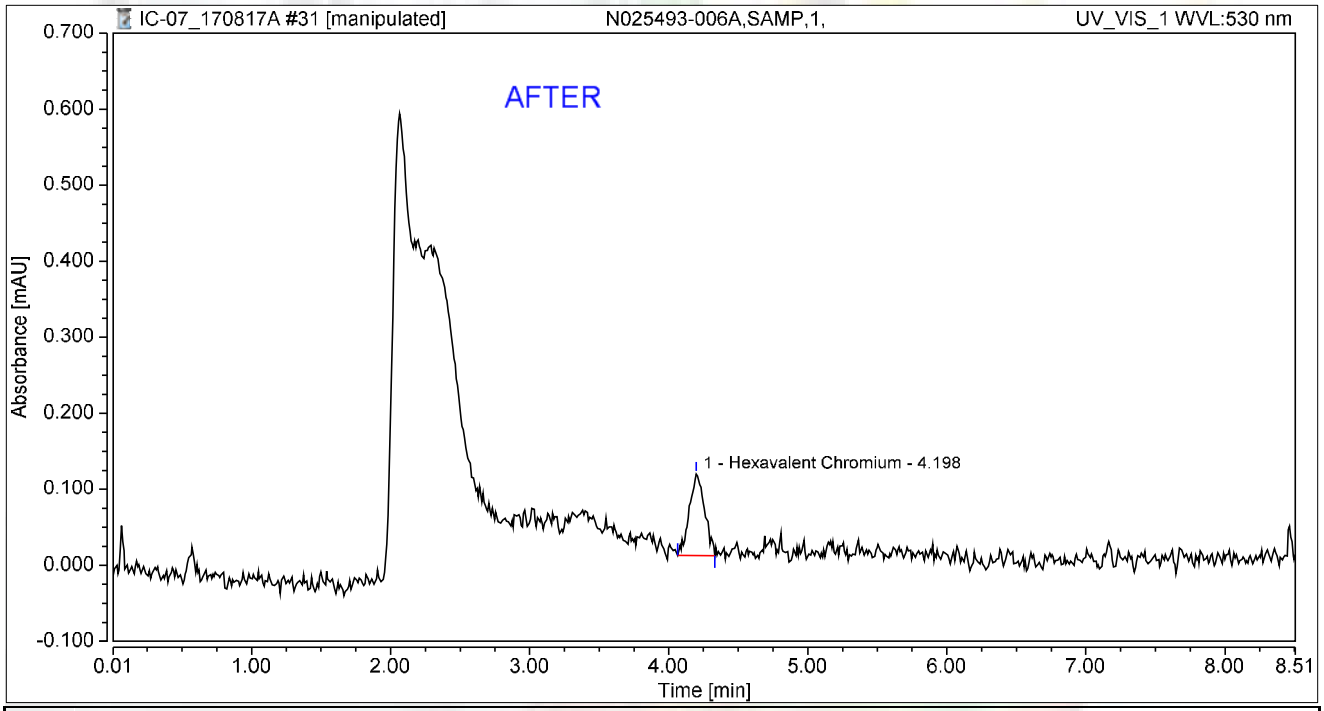
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.280	2.023	100.00	100.00	1.0637
Total:			**0.280**	**2.023**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.014	0.107	100.00	100.00	0.0519
Total:			**0.014**	**0.107**	**100.00**	**100.00**	

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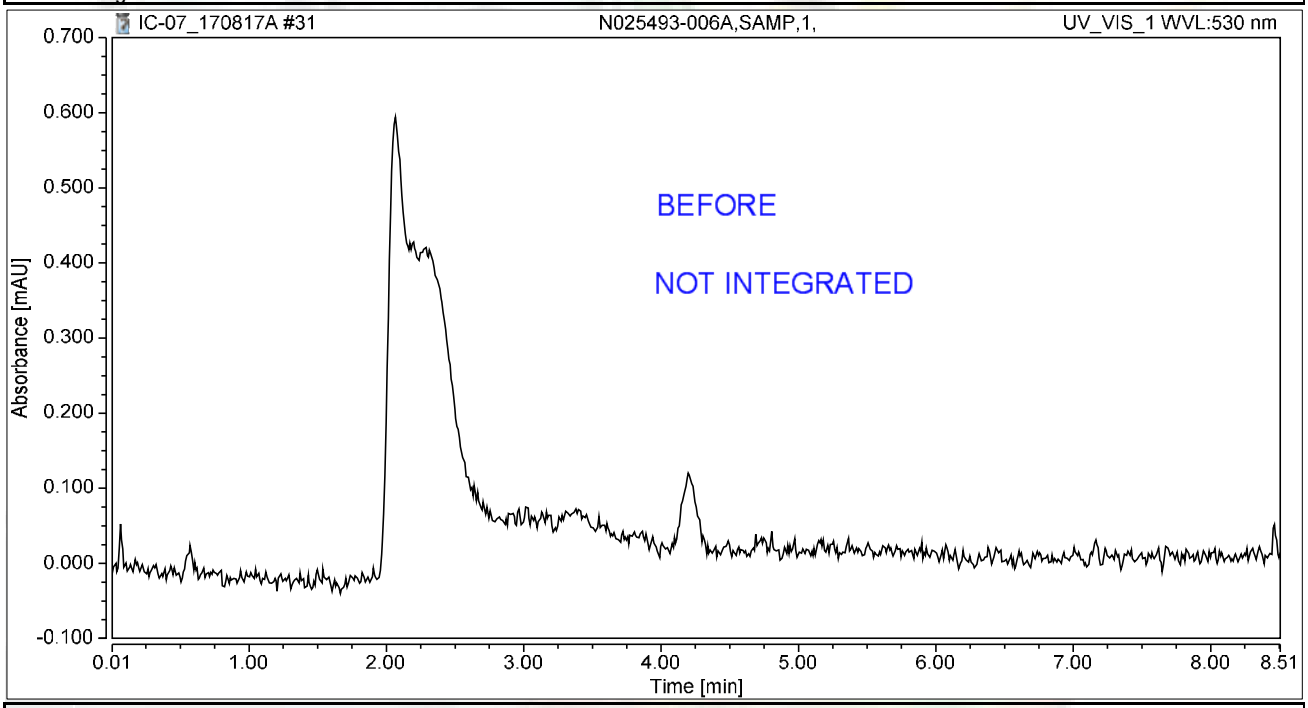
Reviewed by: Nancy 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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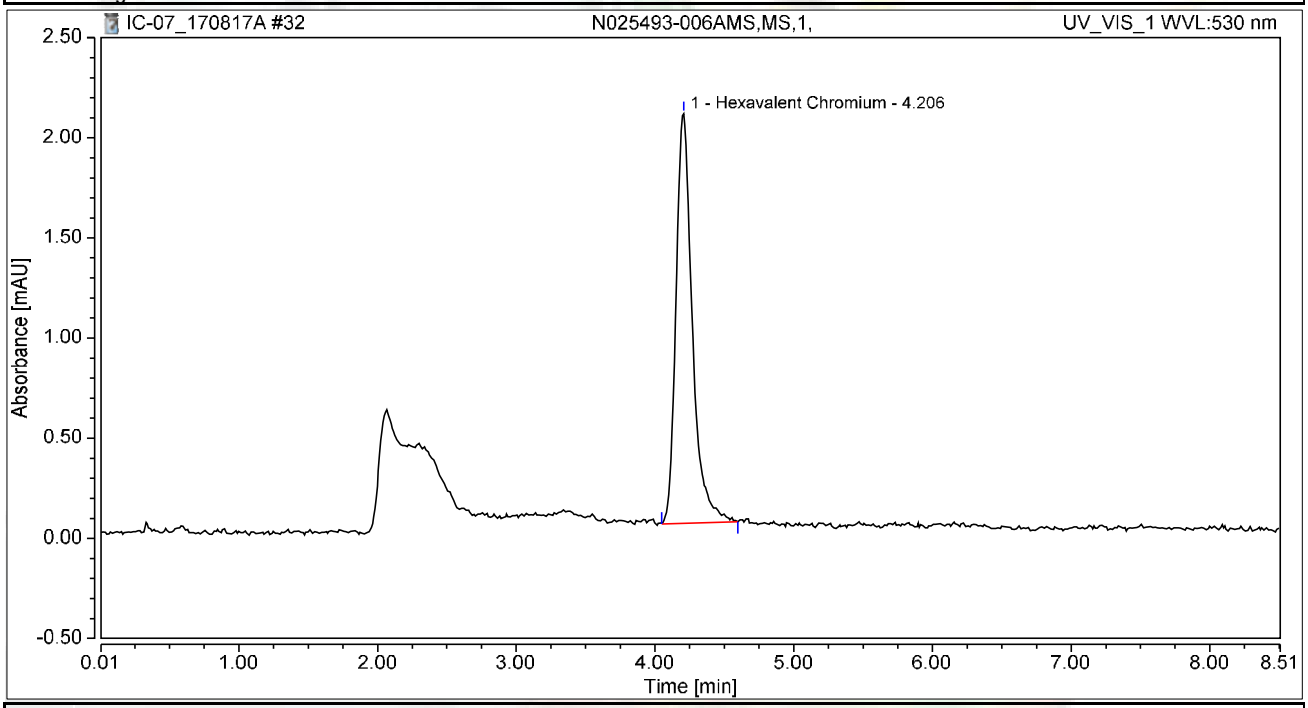
Chromatogram and Results

Injection Details

Injection Name:	**N025493-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

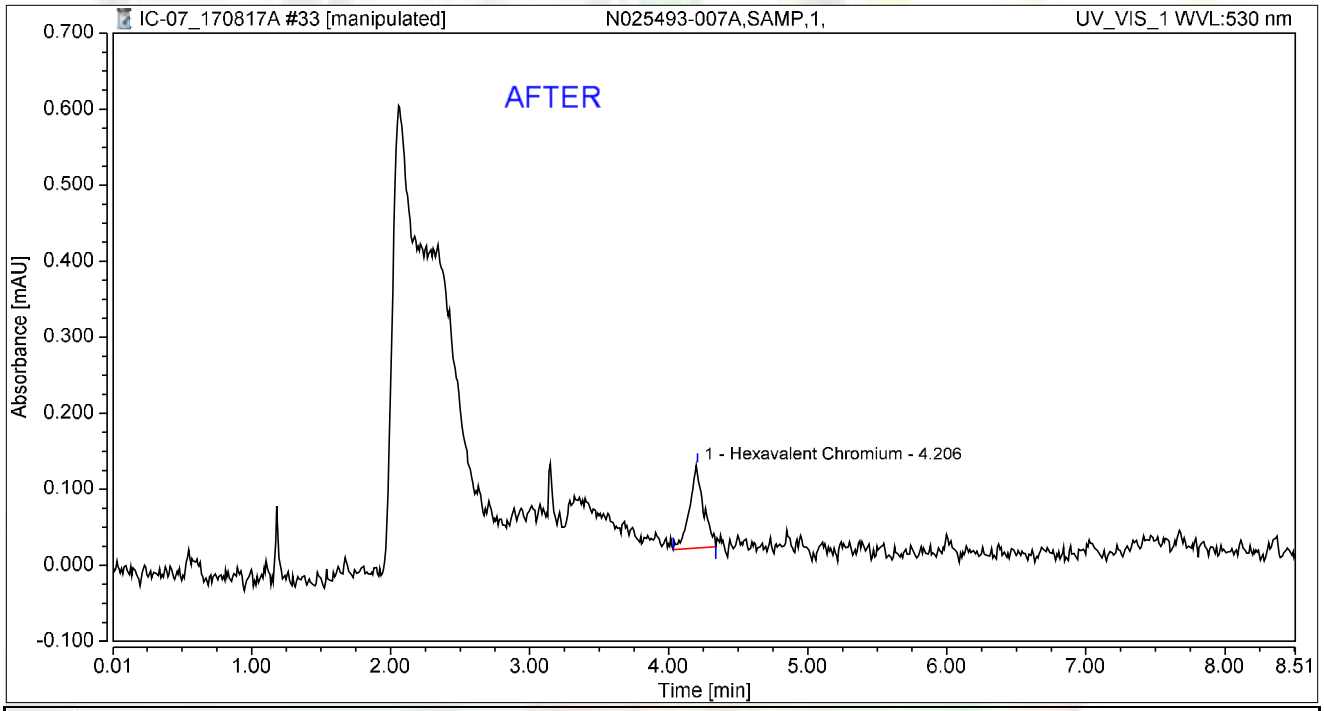
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.280	2.045	100.00	100.00	1.0623
Total:			**0.280**	**2.045**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.013	0.109	100.00	100.00	0.0486
Total:			**0.013**	**0.109**	**100.00**	**100.00**	

rba 8/22/2017

Reviewed by: 8/30/2017
My first report/Integration

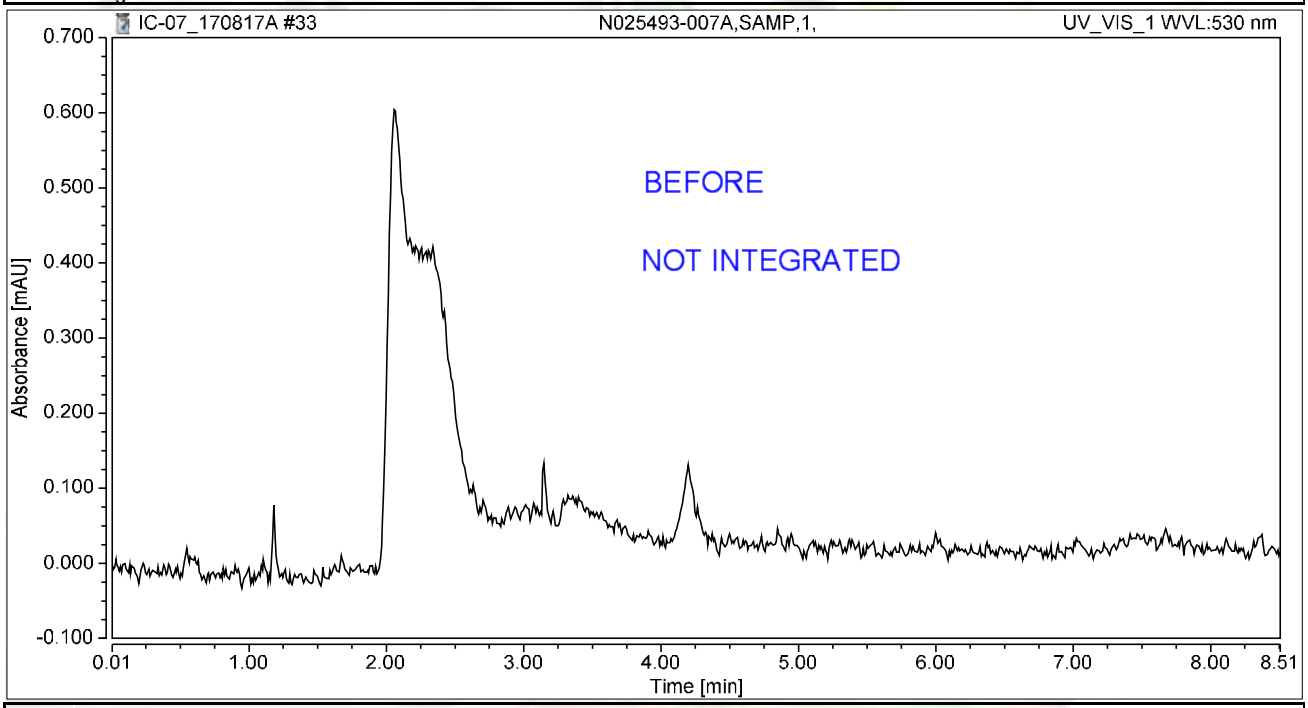
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025493-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

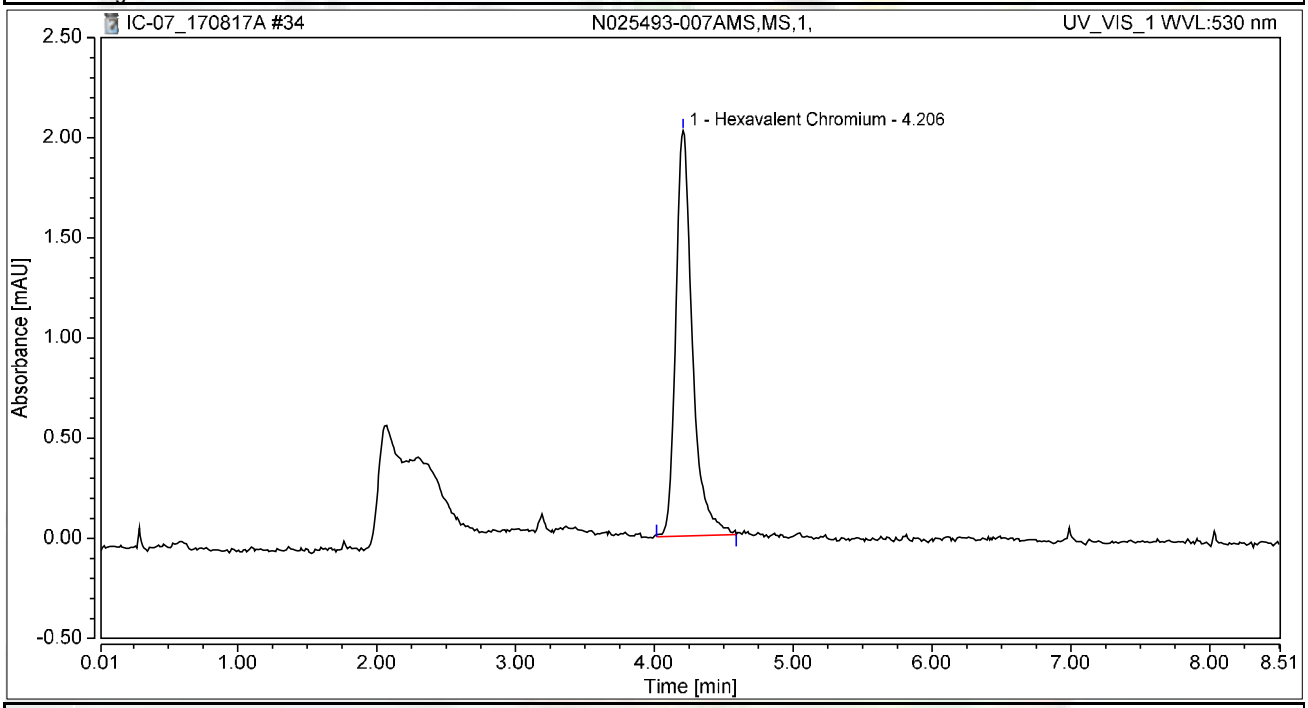
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-007AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 12:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

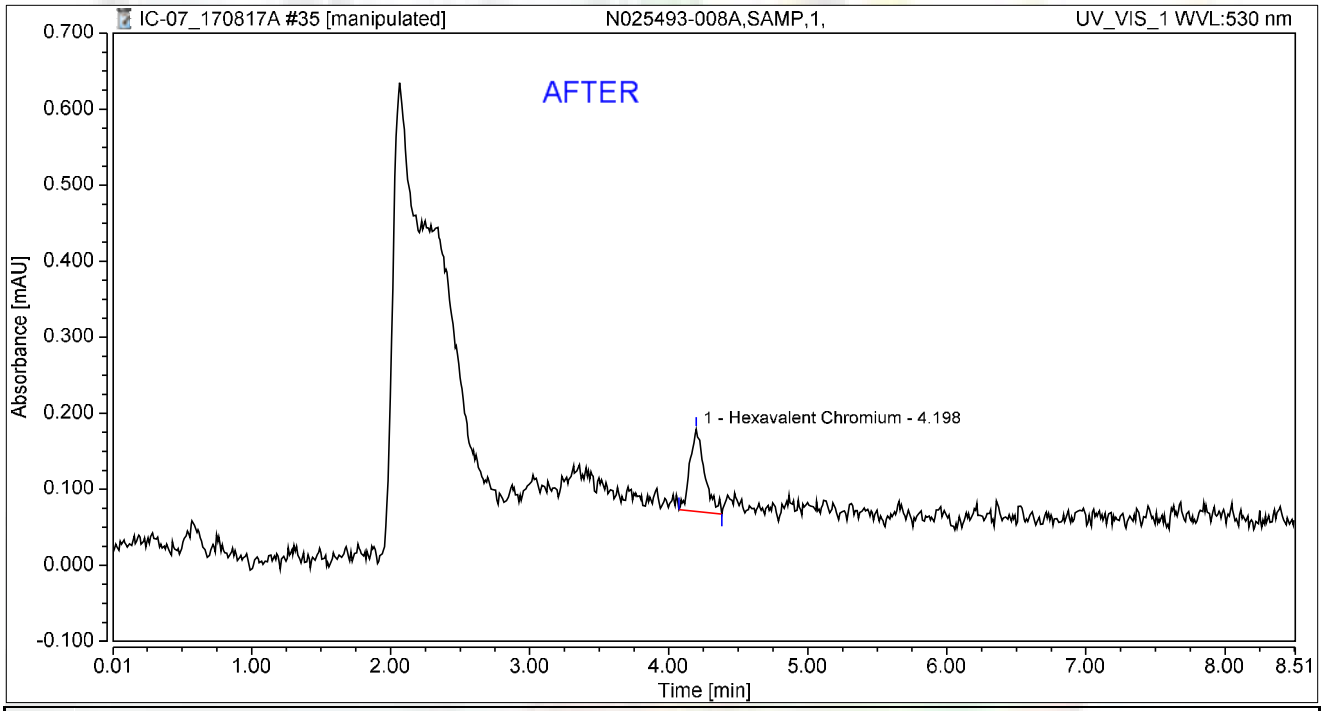
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.281	2.024	100.00	100.00	1.0652
Total:			**0.281**	**2.024**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-008A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.013	0.108	100.00	100.00	0.0510
Total:			**0.013**	**0.108**	**100.00**	**100.00**	

rba 8/22/2017

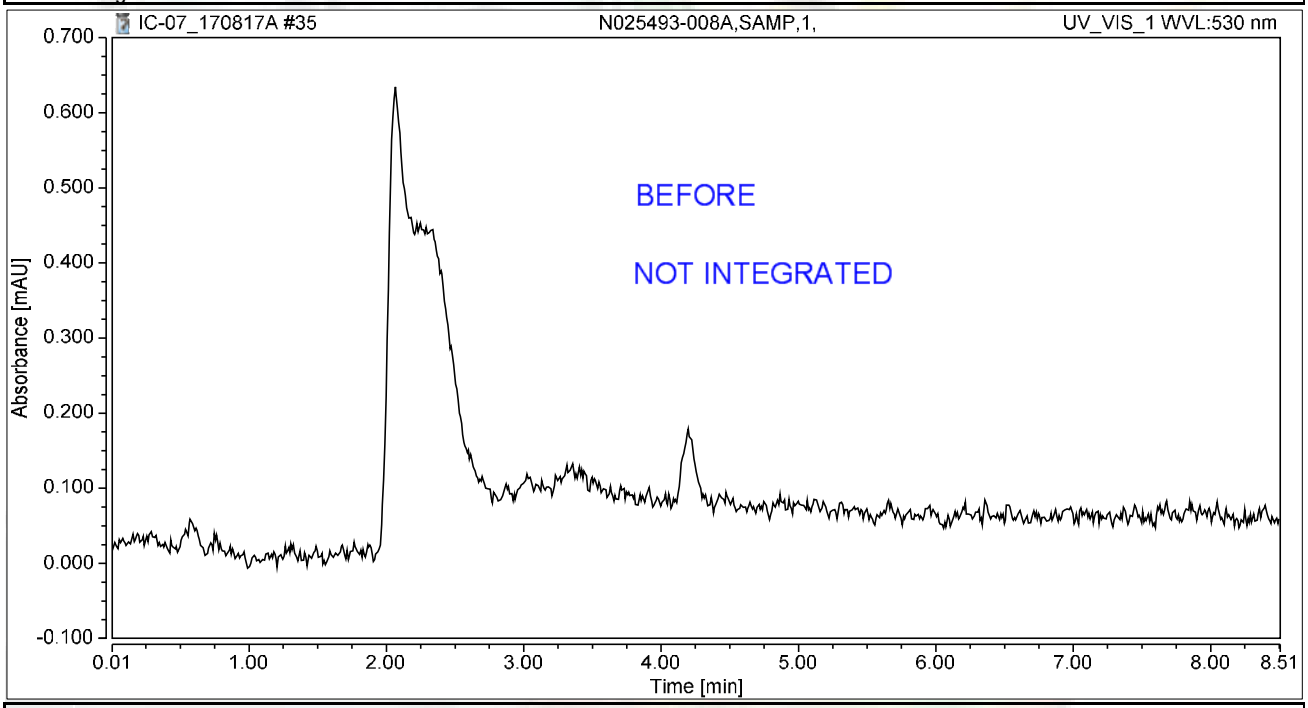
Reviewed by: 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-008A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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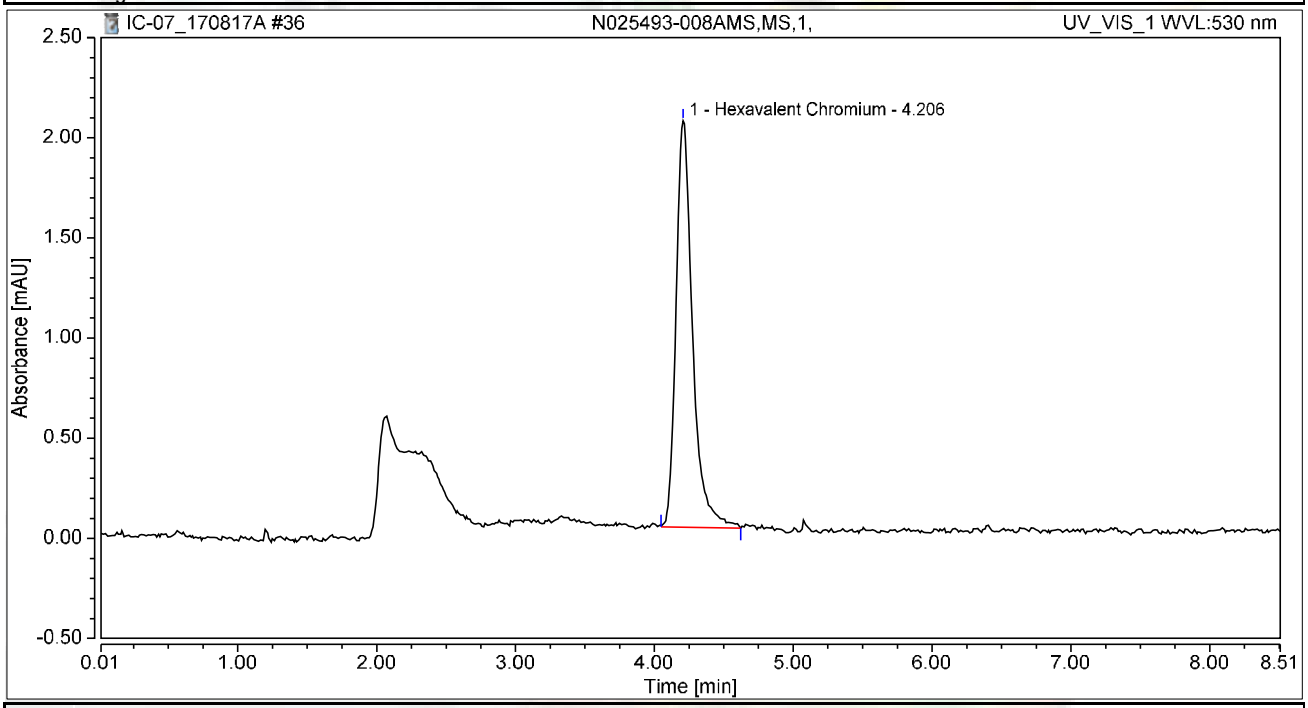
Chromatogram and Results

Injection Details

Injection Name:	**N025493-008AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

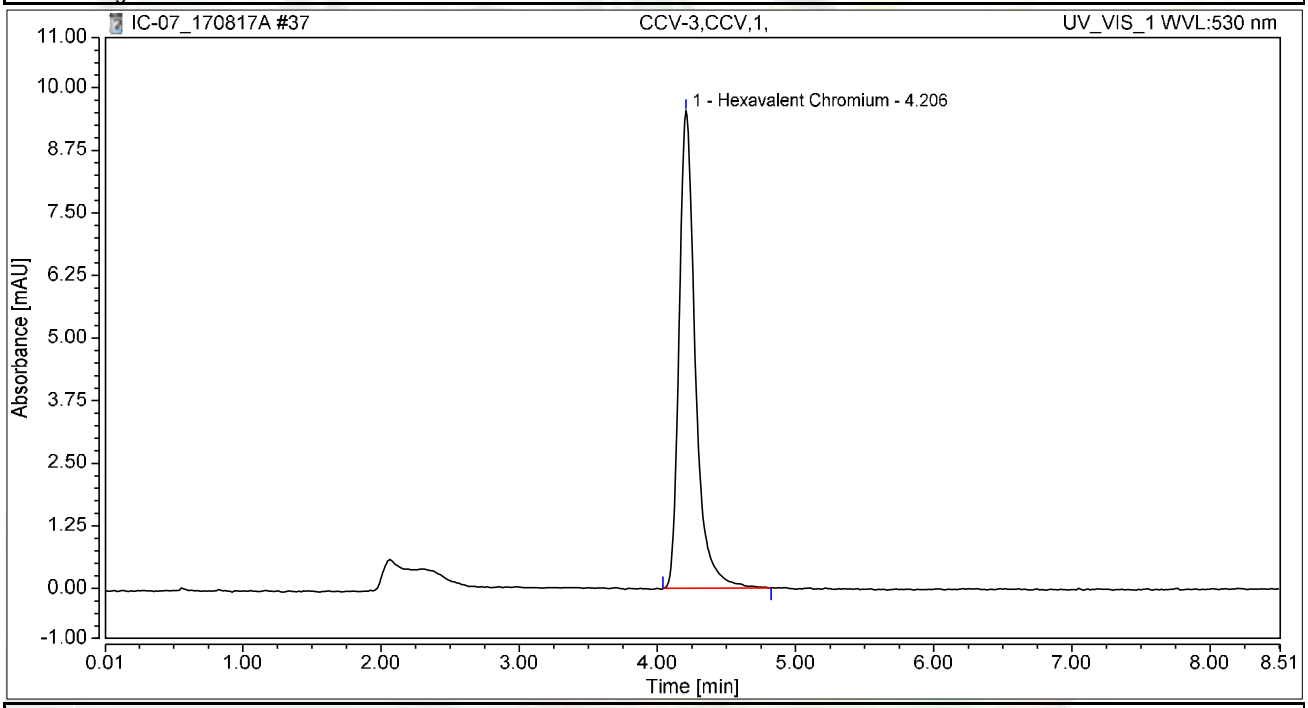
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.280	2.028	100.00	100.00	1.0614
Total:			**0.280**	**2.028**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

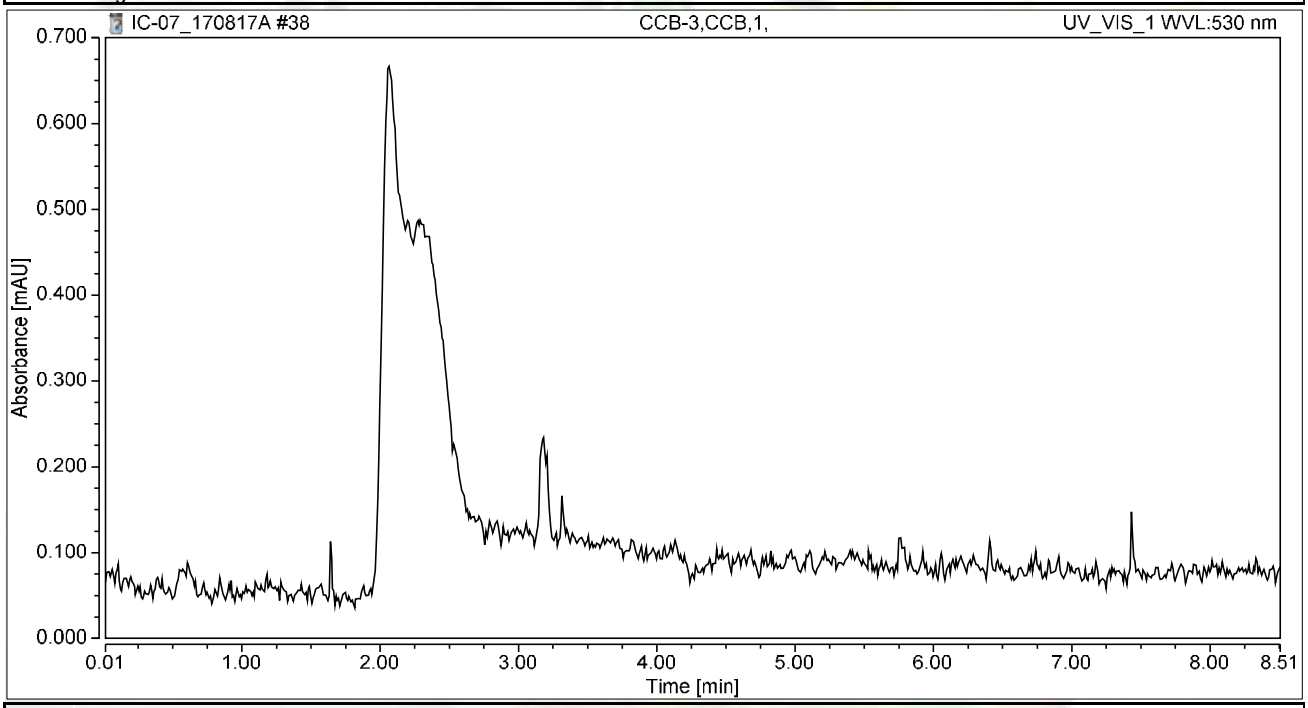
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.301	9.527	100.00	100.00	4.9408
Total:			**1.301**	**9.527**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

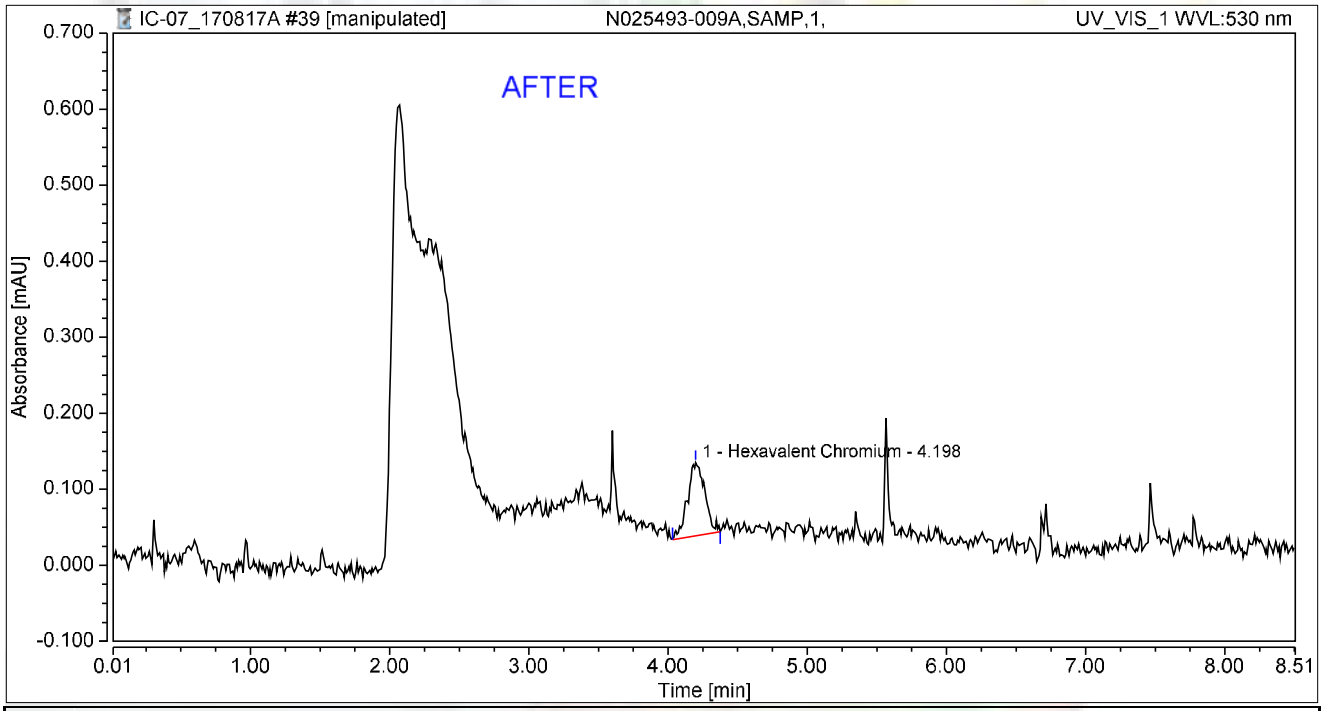
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-009A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.014	0.096	100.00	100.00	0.0526
Total:			**0.014**	**0.096**	**100.00**	**100.00**	

rba 8/22/2017

Reviewed

My first report/Integration Dionex 8/30/2017

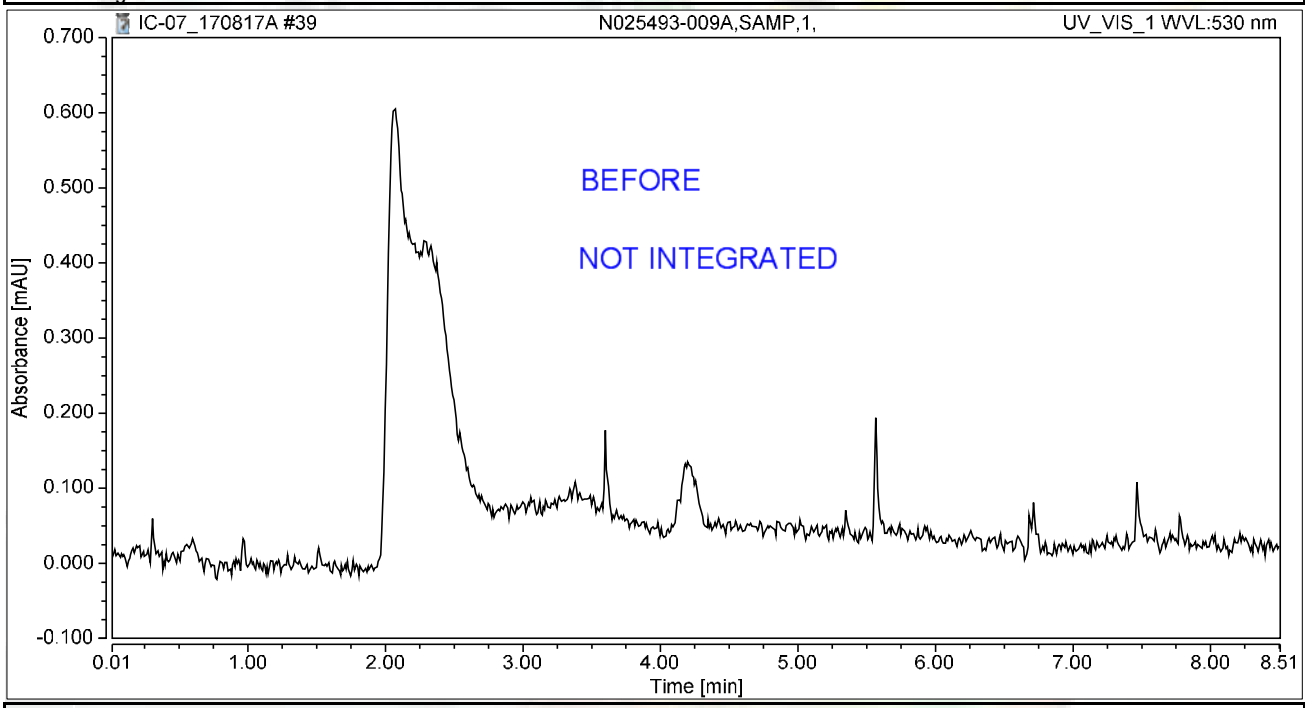
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025493-009A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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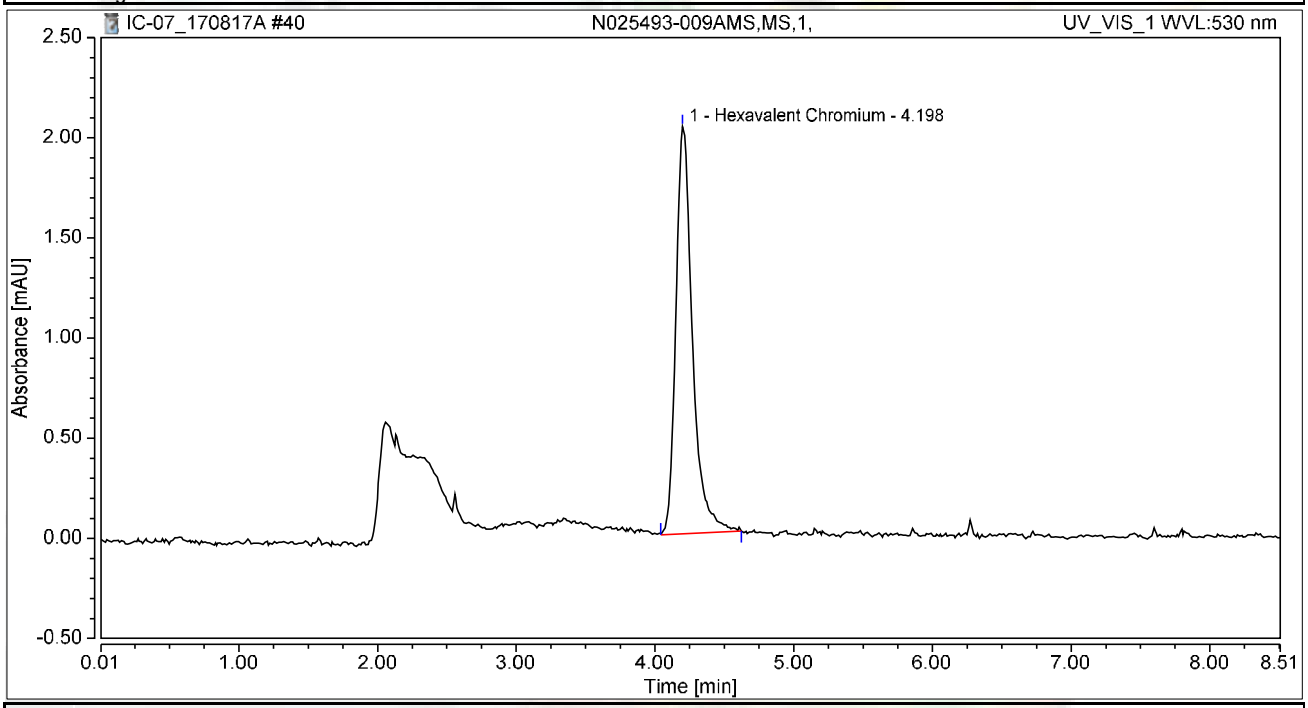
Chromatogram and Results

Injection Details

Injection Name:	**N025493-009AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

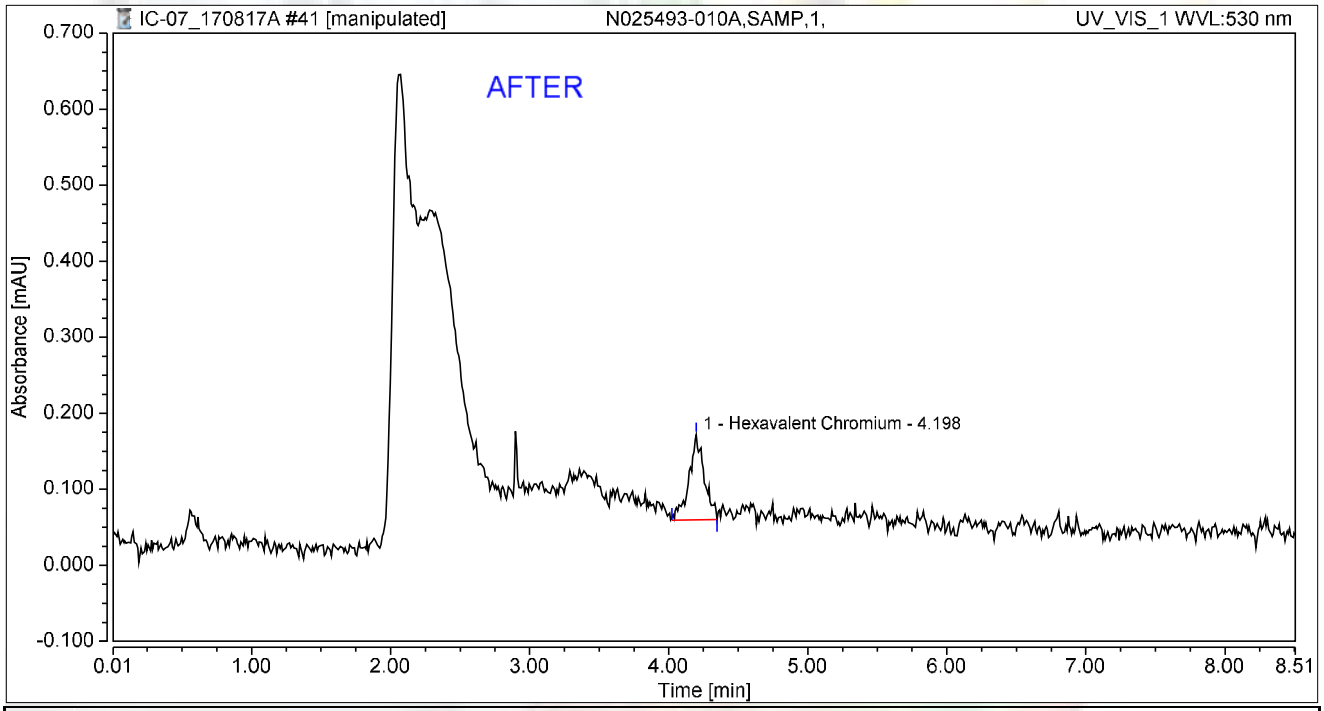
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.282	2.033	100.00	100.00	1.0689
Total:			**0.282**	**2.033**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-010A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.014	0.112	100.00	100.00	0.0539
Total:			**0.014**	**0.112**	**100.00**	**100.00**	

rba 8/22/2017

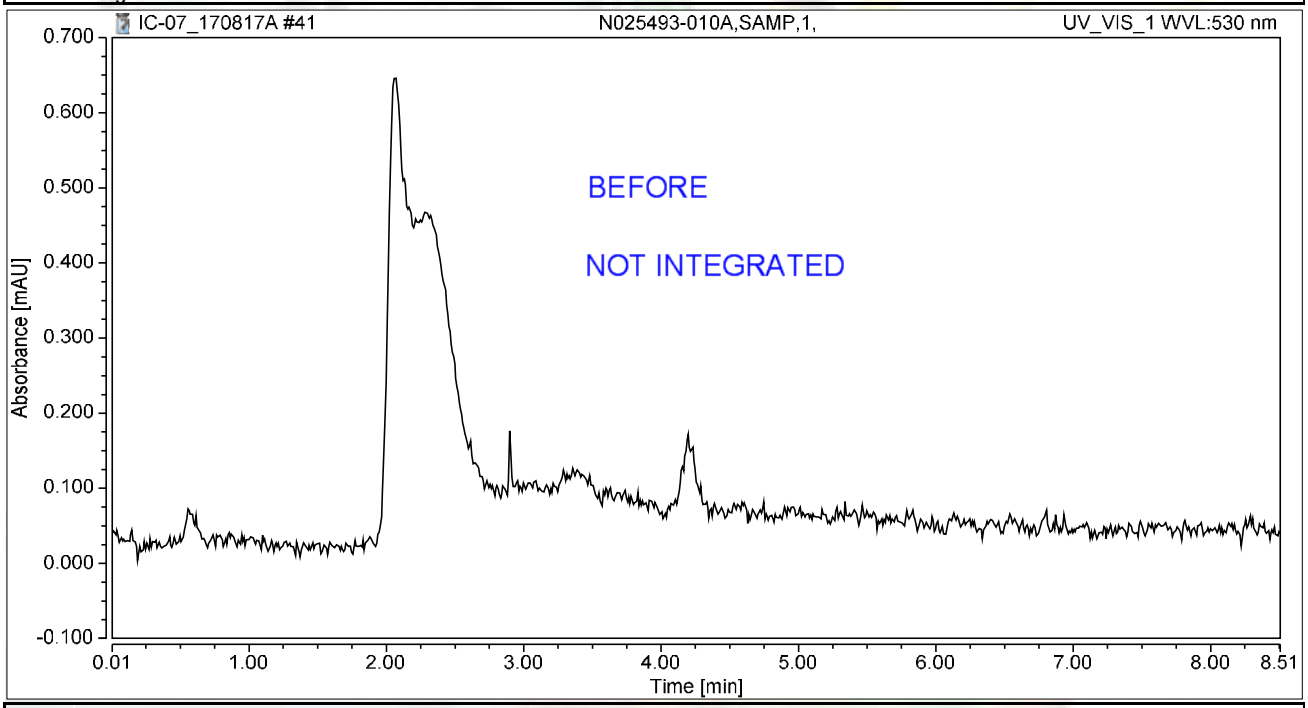
Reviewed by: Nancy 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-010A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

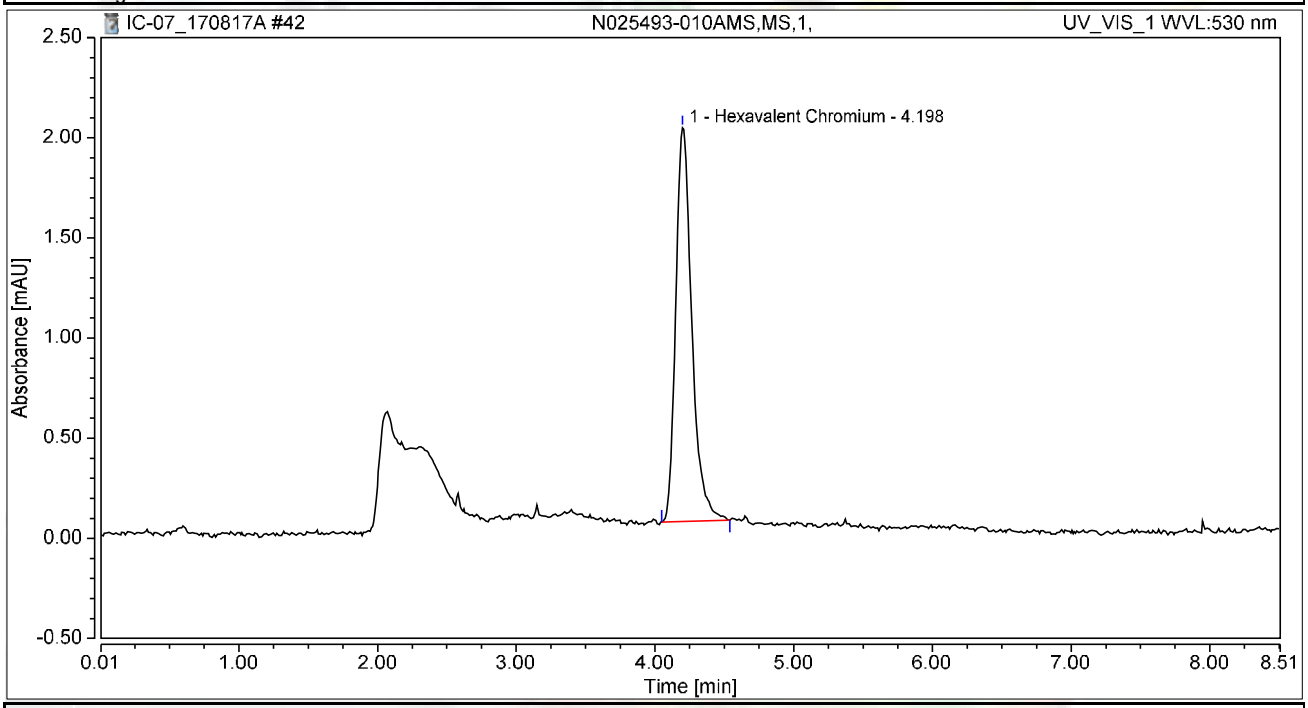
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-010AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

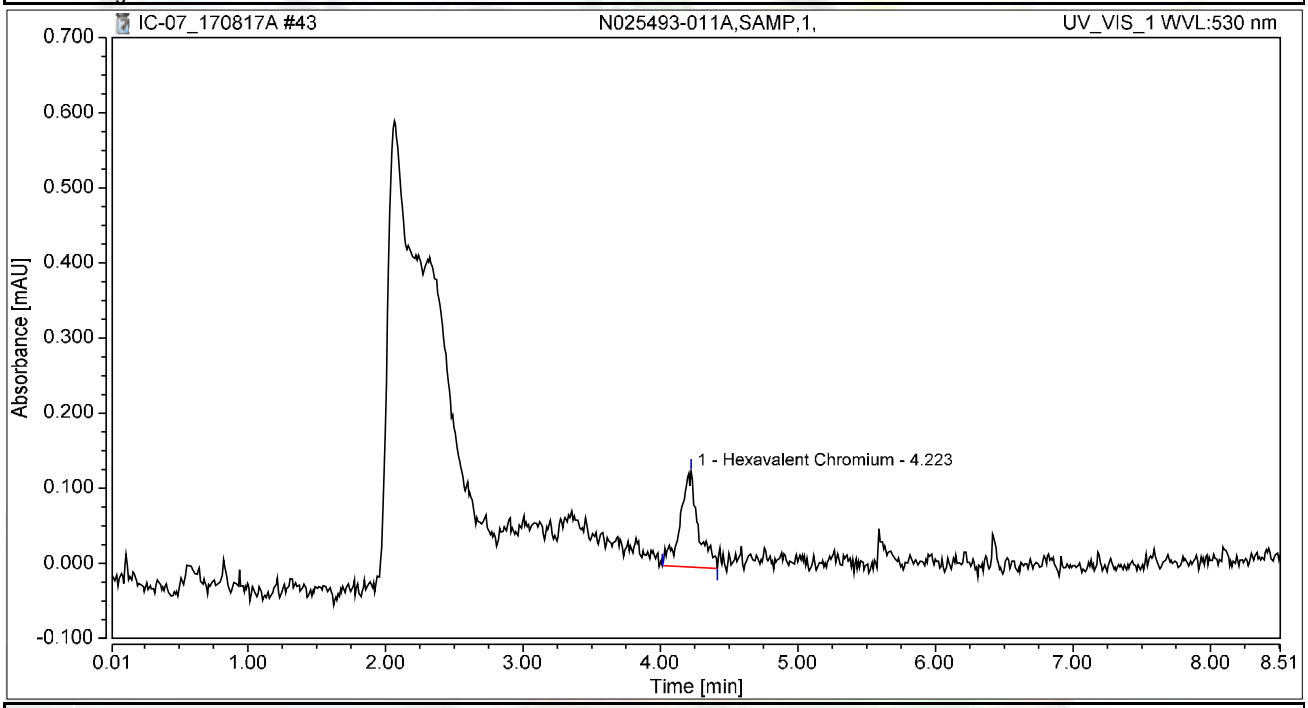
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.264	1.966	100.00	100.00	1.0024
Total:			**0.264**	**1.966**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-011A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

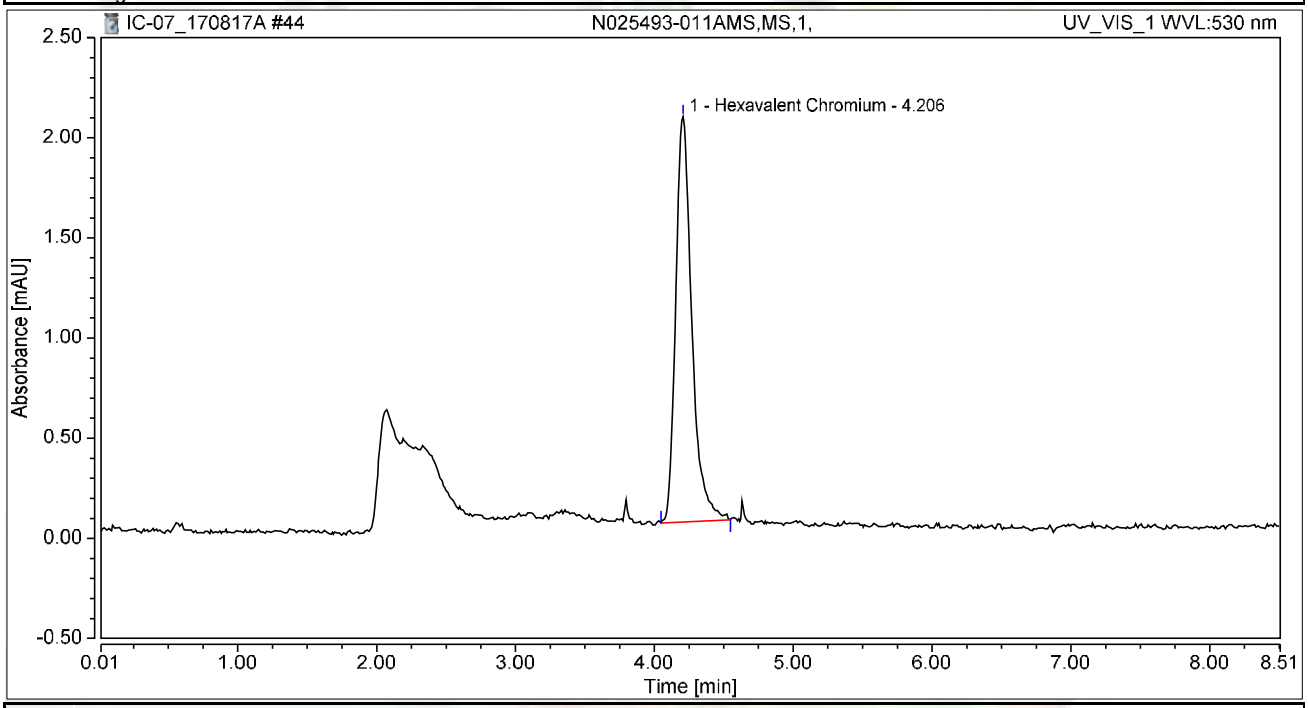
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.223	0.019	0.128	100.00	100.00	0.0721
Total:			**0.019**	**0.128**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-011AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

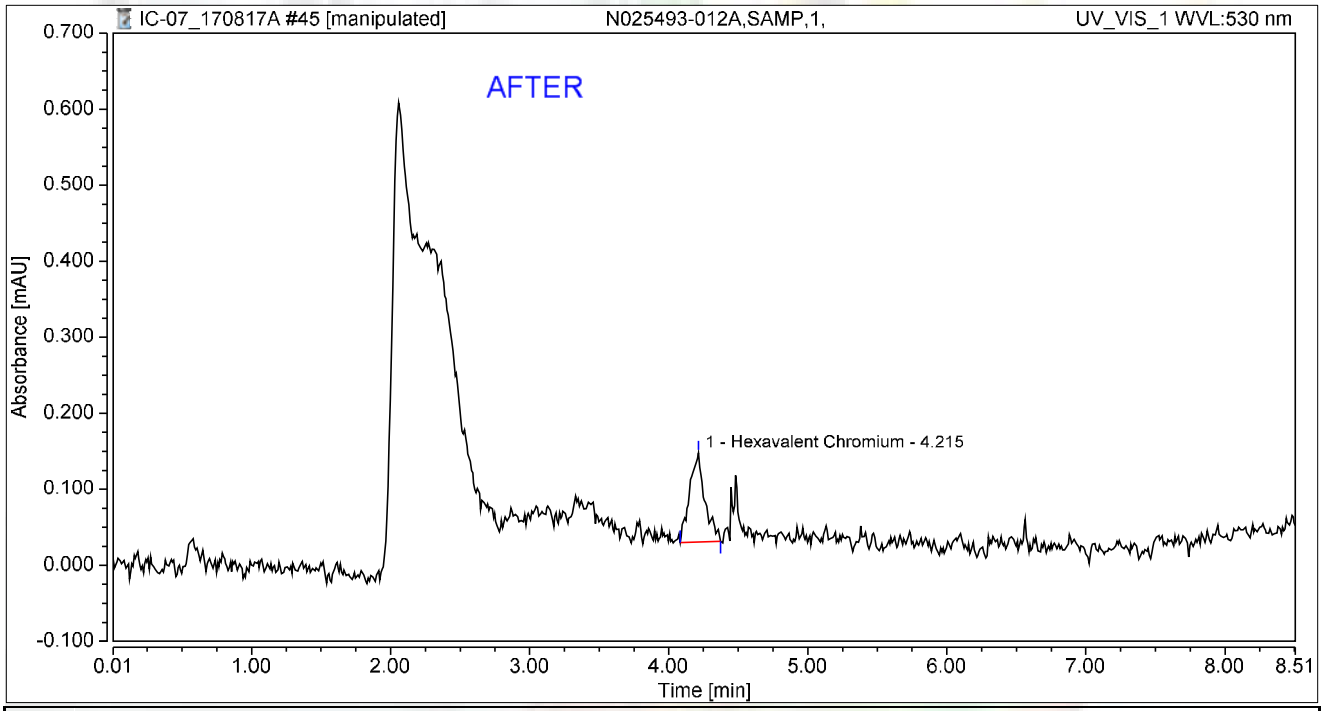
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.272	2.024	100.00	100.00	1.0325
Total:			**0.272**	**2.024**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-012A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.015	0.117	100.00	100.00	0.0562
Total:			**0.015**	**0.117**	**100.00**	**100.00**	

rba 8/22/2017

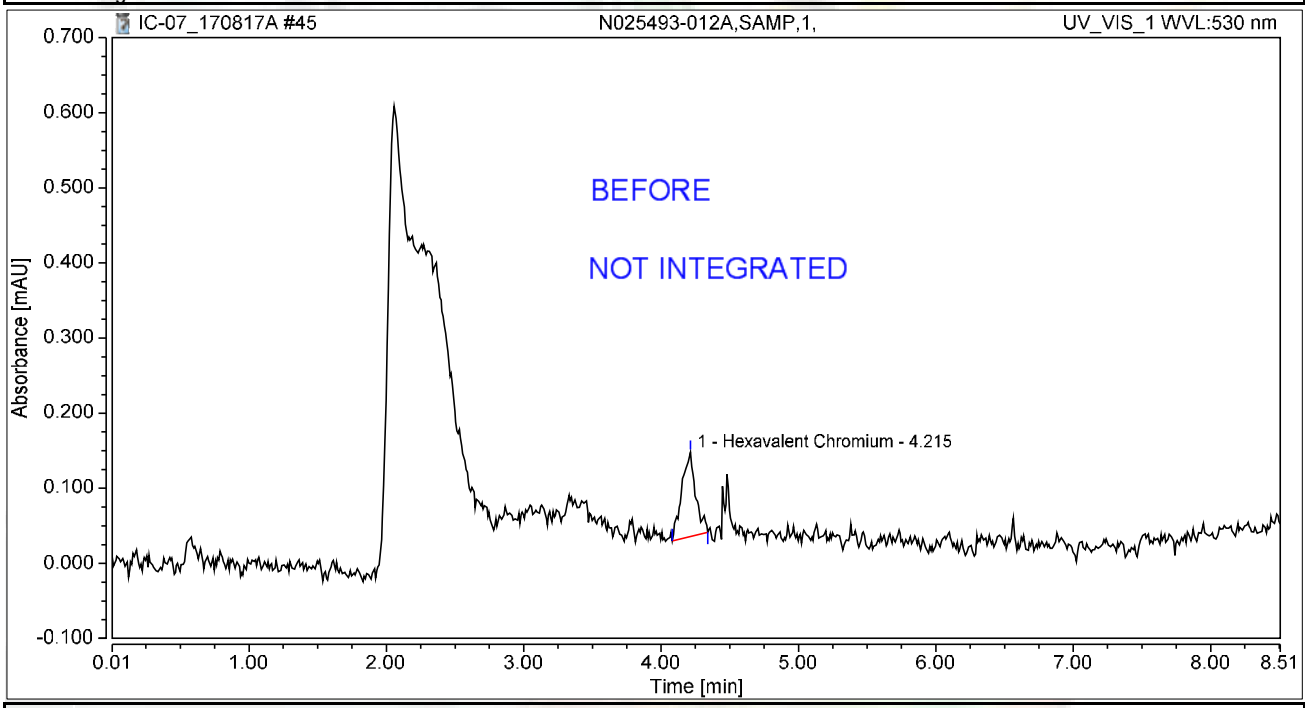
Reviewed by: 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-012A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.215	0.013	0.112	100.00	100.00	0.0496
Total:			**0.013**	**0.112**	**100.00**	**100.00**	

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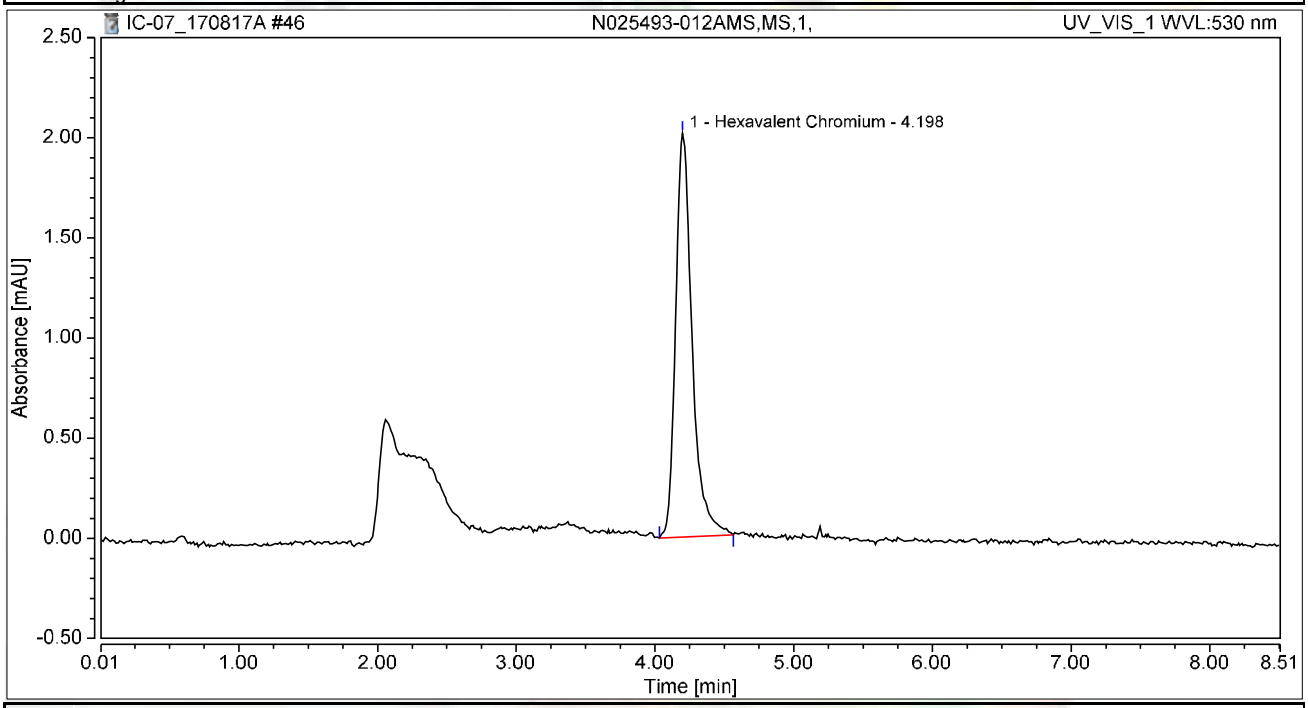
Chromatogram and Results

Injection Details

Injection Name:	**N025493-012AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

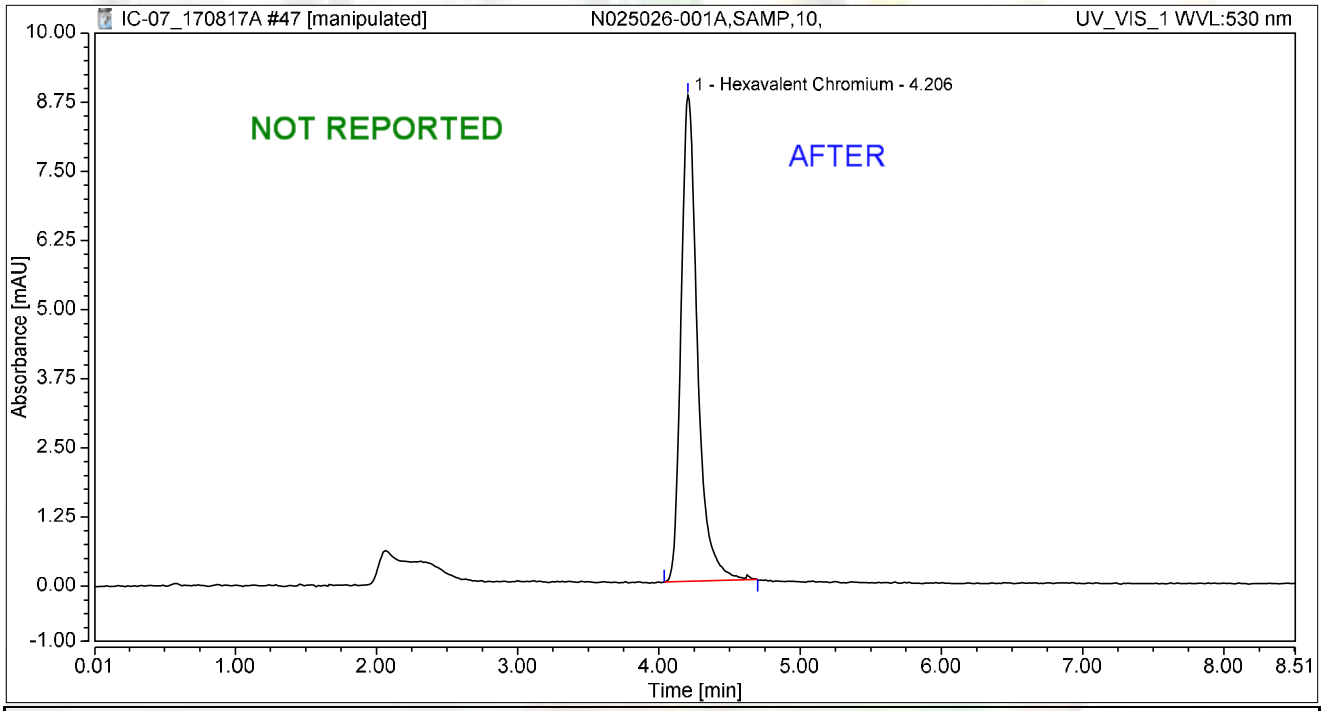
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.279	2.018	100.00	100.00	1.0583
Total:			**0.279**	**2.018**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025026-001A,SAMP,10,**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.184	8.789	100.00	100.00	4.4939
Total:			**1.184**	**8.789**	**100.00**	**100.00**	

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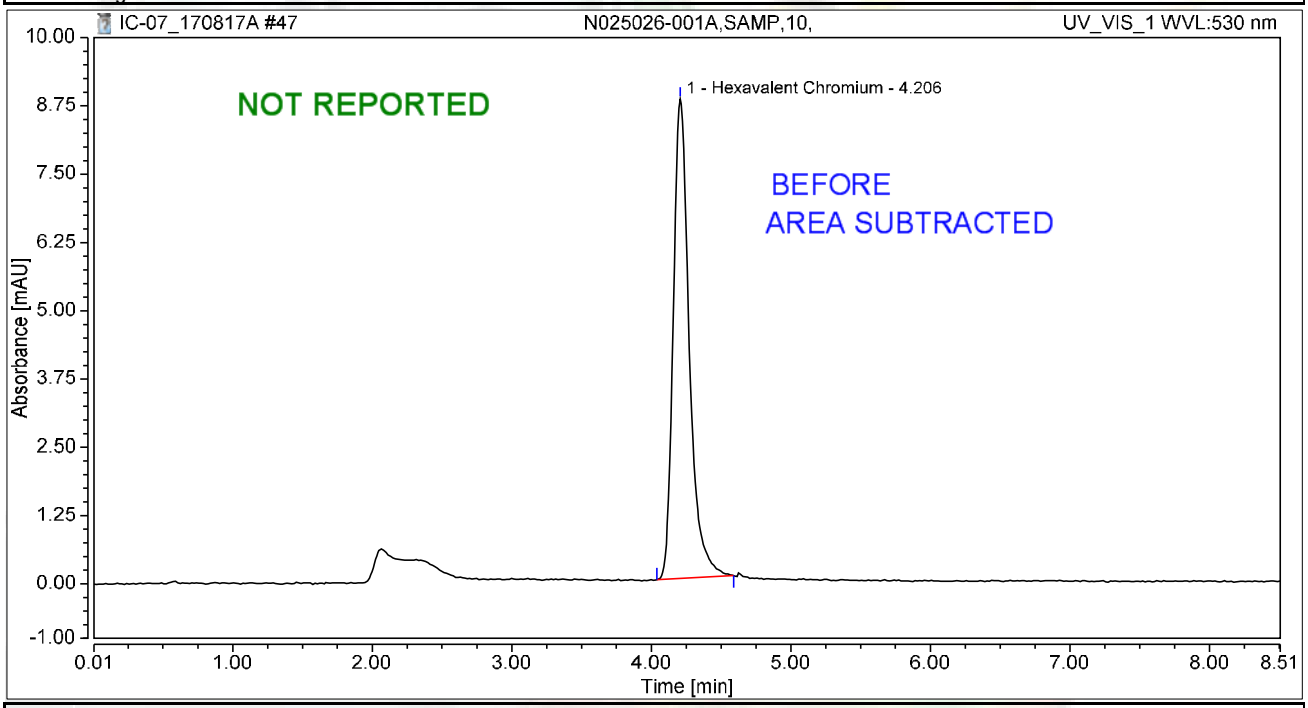
Chromatogram and Results

Injection Details

Injection Name:	**N025026-001A,SAMP,10,**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 14:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.169	8.777	100.00	100.00	4.4381
Total:			**1.169**	**8.777**	**100.00**	**100.00**	

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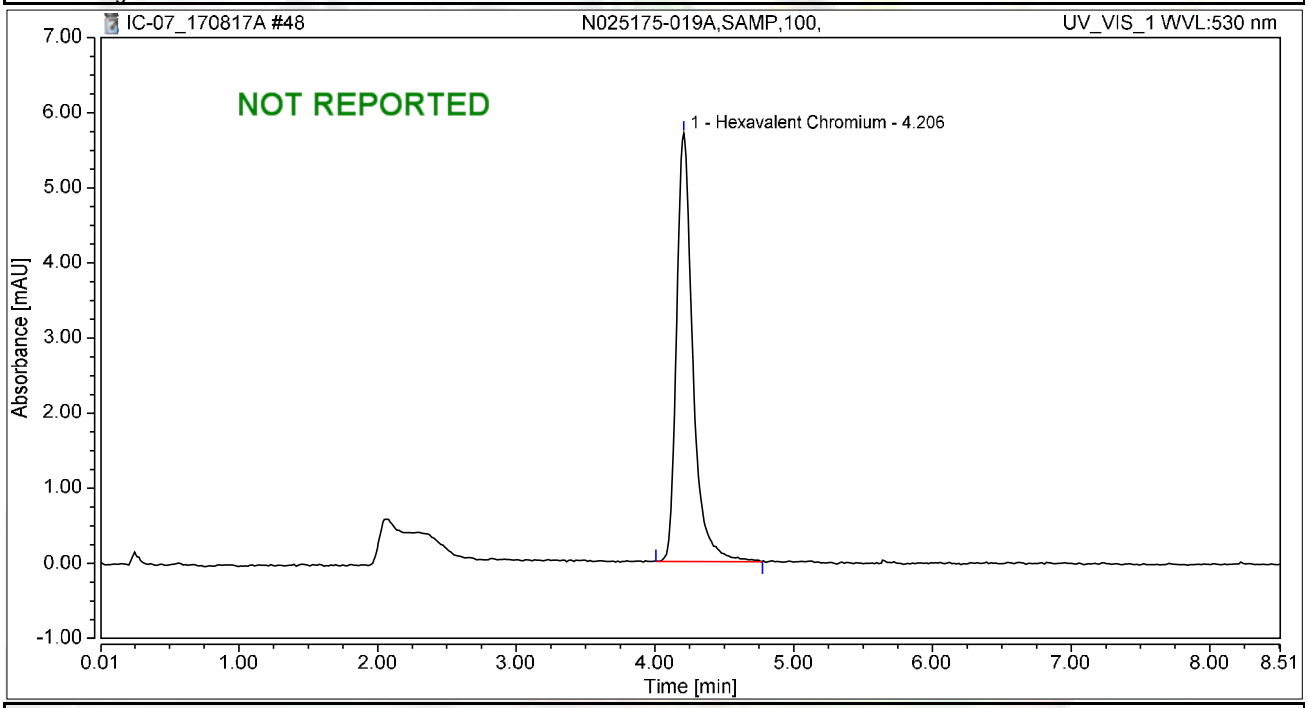
Chromatogram and Results

Injection Details

Injection Name:	**N025175-019A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.776	5.704	100.00	100.00	2.9465
Total:			**0.776**	**5.704**	**100.00**	**100.00**	

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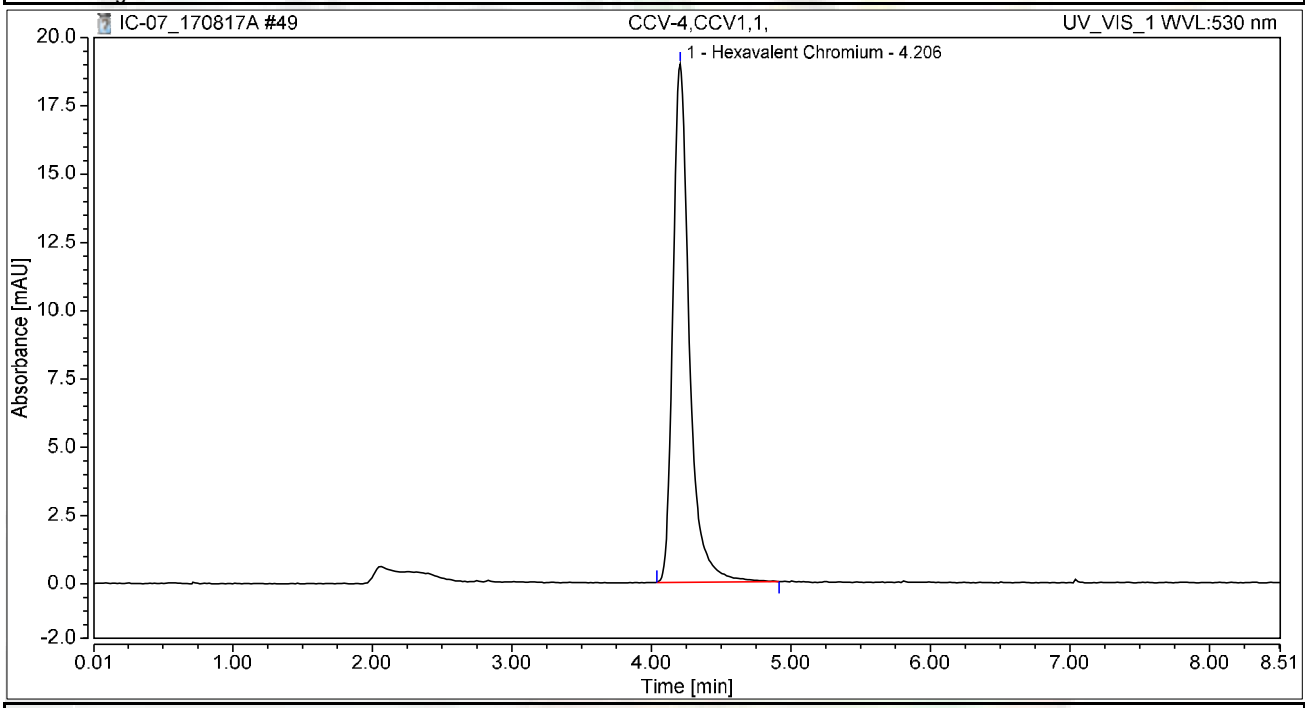
Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 15:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

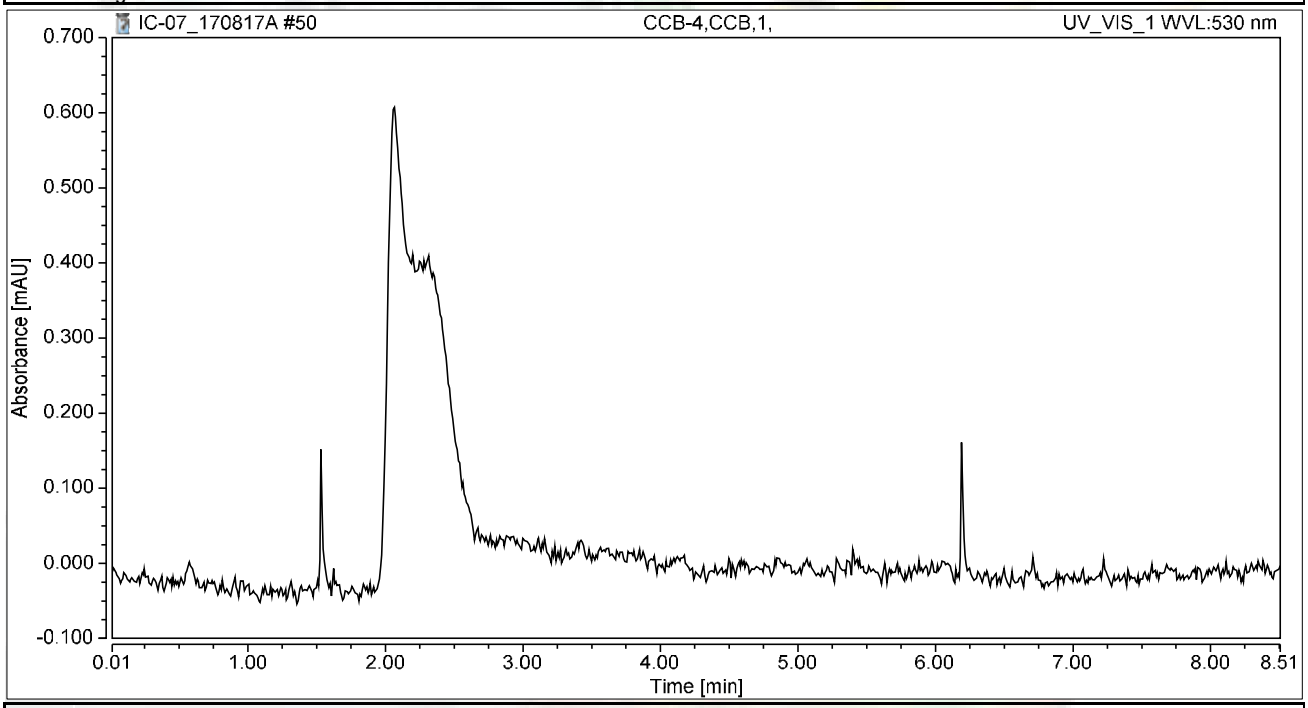
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	2.594	18.978	100.00	100.00	9.8476
Total:			**2.594**	**18.978**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 15:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

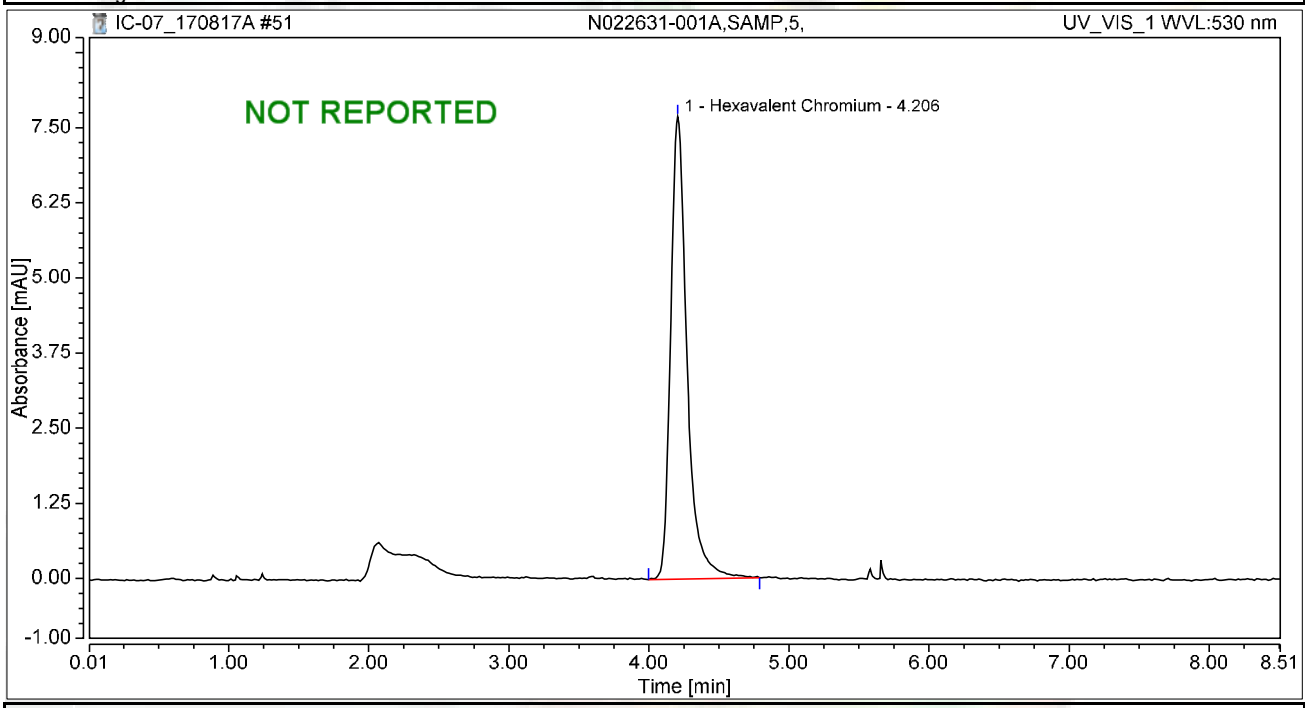
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N022631-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 15:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.045	7.697	100.00	100.00	3.9683
Total:			**1.045**	**7.697**	**100.00**	**100.00**	

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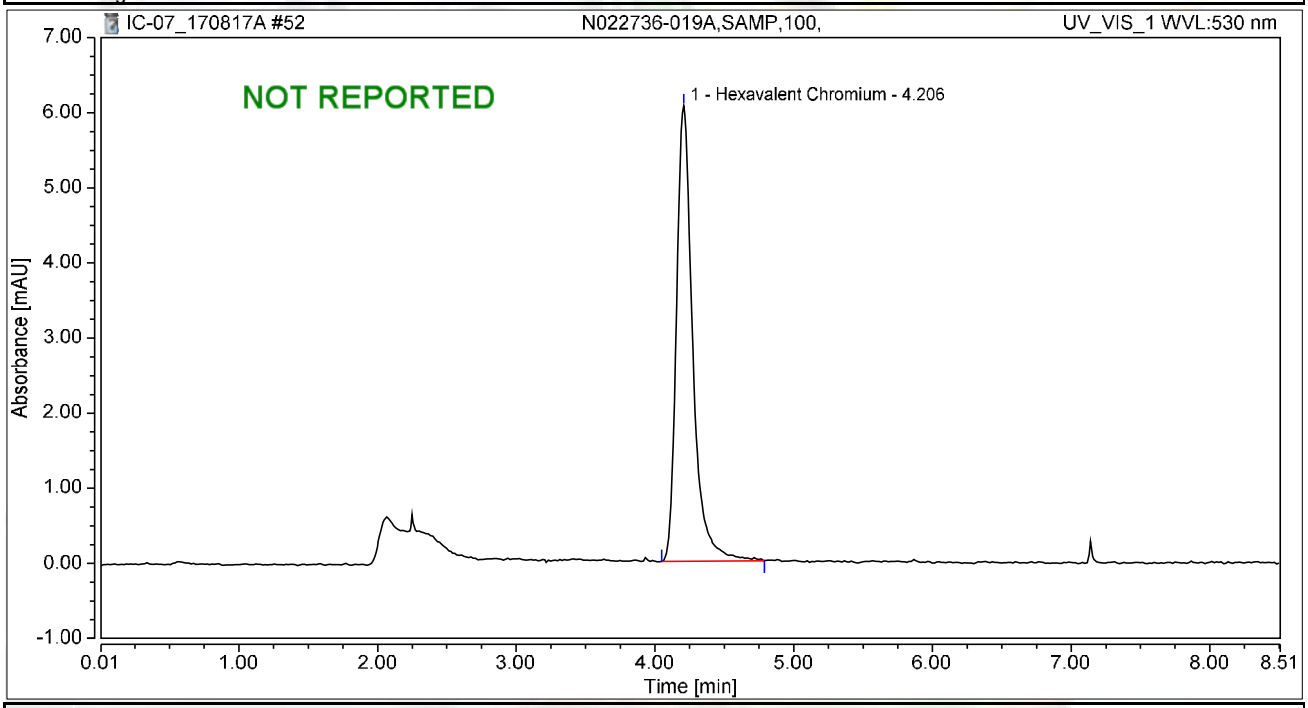
Chromatogram and Results

Injection Details

Injection Name:	**N022736-019A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 15:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.828	6.065	100.00	100.00	3.1425
Total:			**0.828**	**6.065**	**100.00**	**100.00**	

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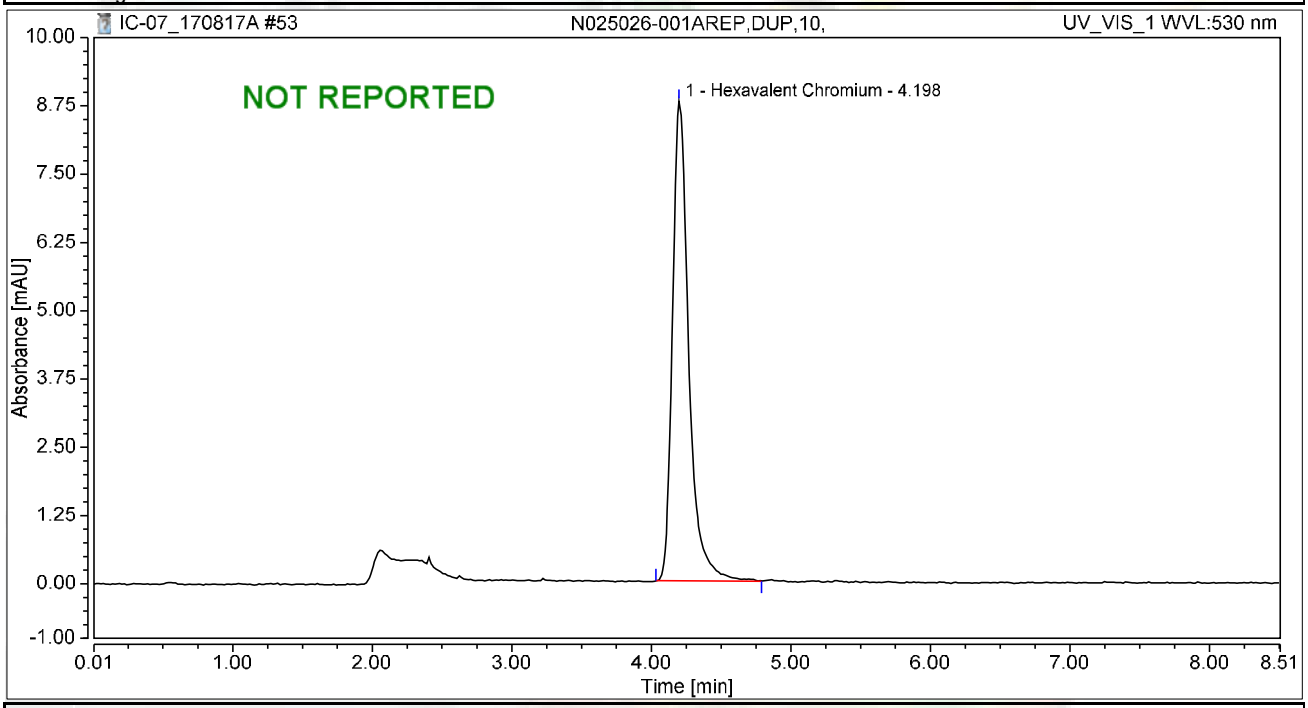
Chromatogram and Results

Injection Details

Injection Name:	**N025026-001AREP,DUP,10,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 15:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	1.190	8.777	100.00	100.00	4.5185
Total:			**1.190**	**8.777**	**100.00**	**100.00**	

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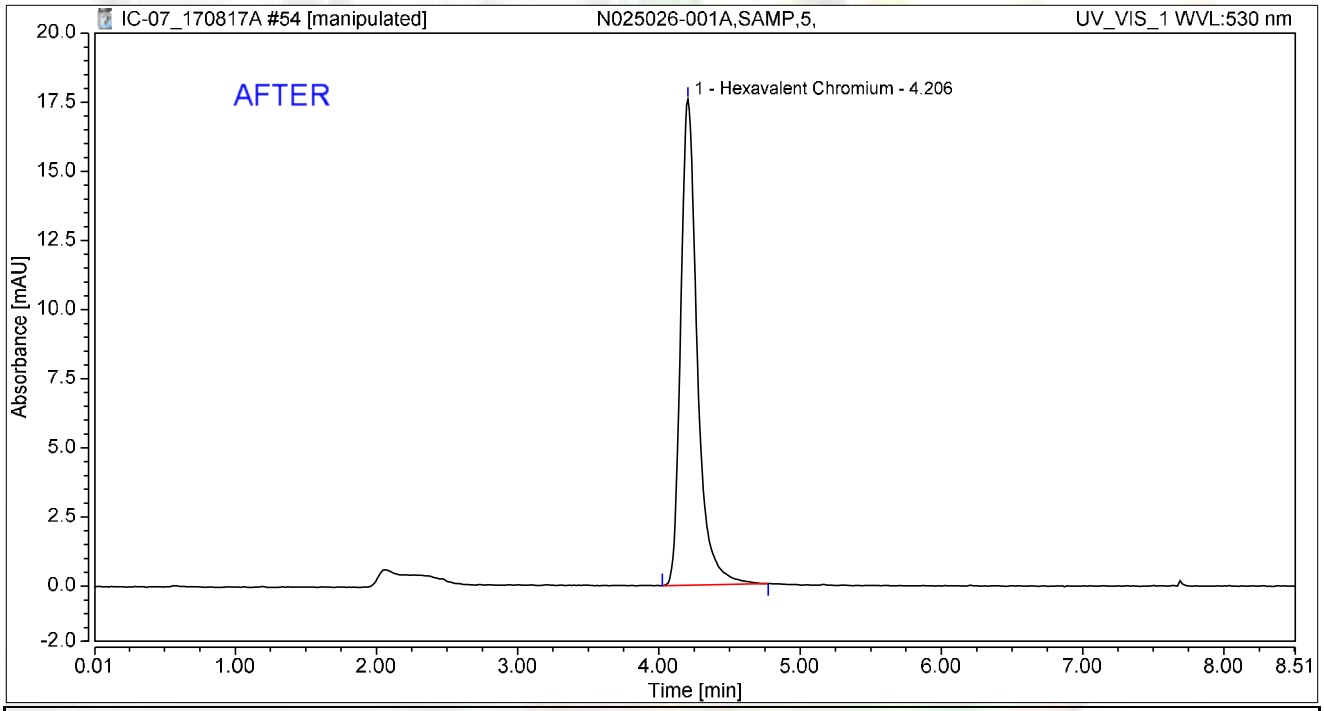
Chromatogram and Results

Injection Details

Injection Name:	**N025026-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	2.390	17.567	100.00	100.00	9.0740
Total:			**2.390**	**17.567**	**100.00**	**100.00**	

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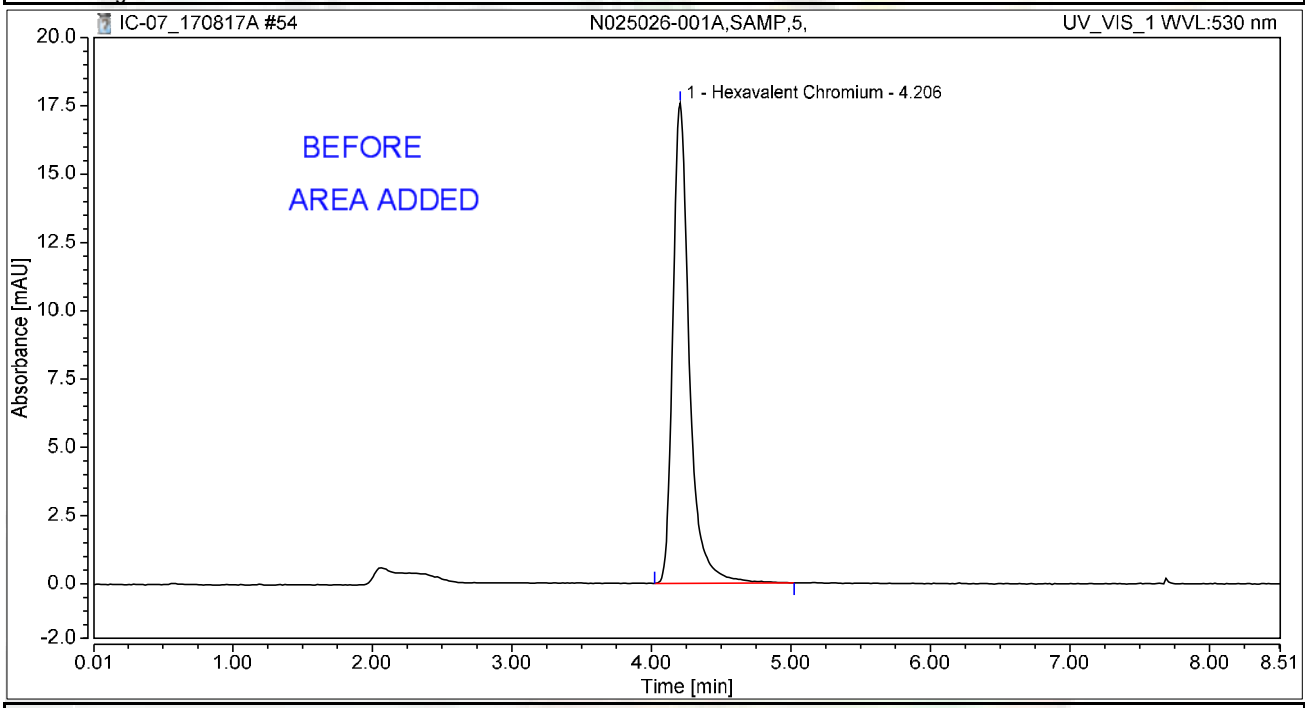
Chromatogram and Results

Injection Details

Injection Name:	**N025026-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	2.422	17.582	100.00	100.00	9.1951
Total:			**2.422**	**17.582**	**100.00**	**100.00**	

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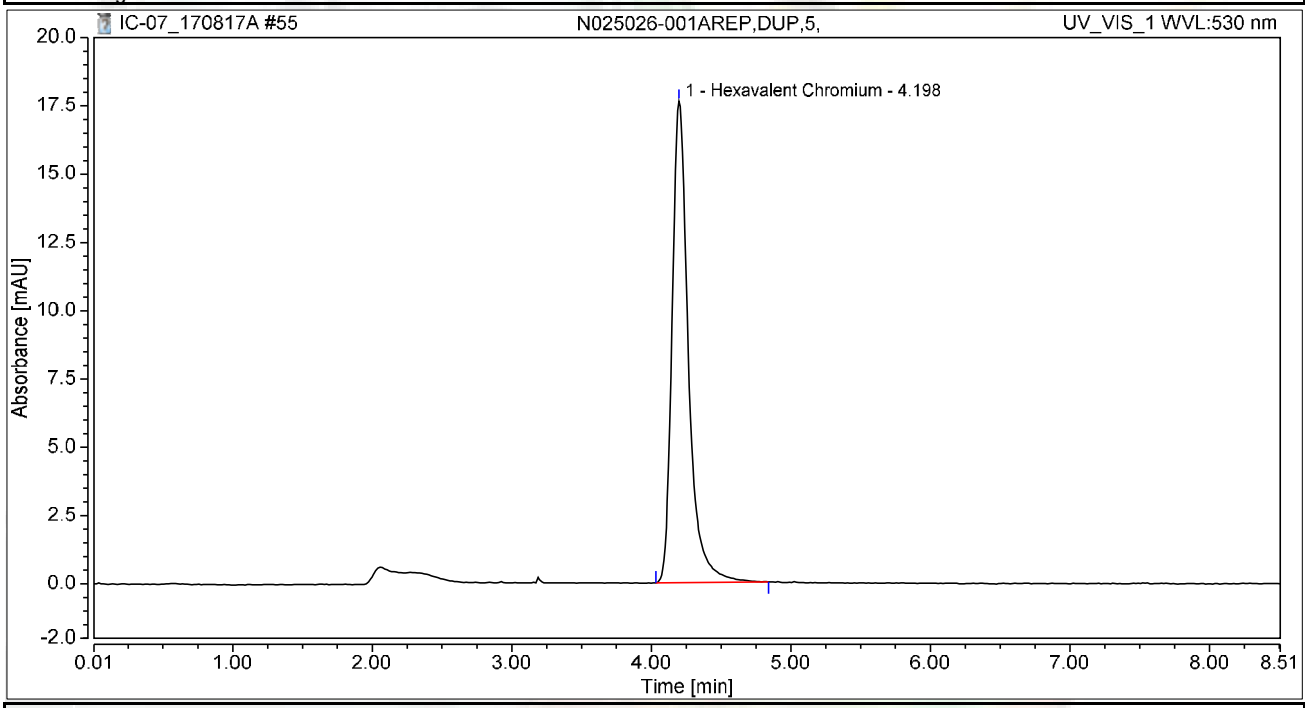
Chromatogram and Results

Injection Details

Injection Name:	**N025026-001AREP,DUP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

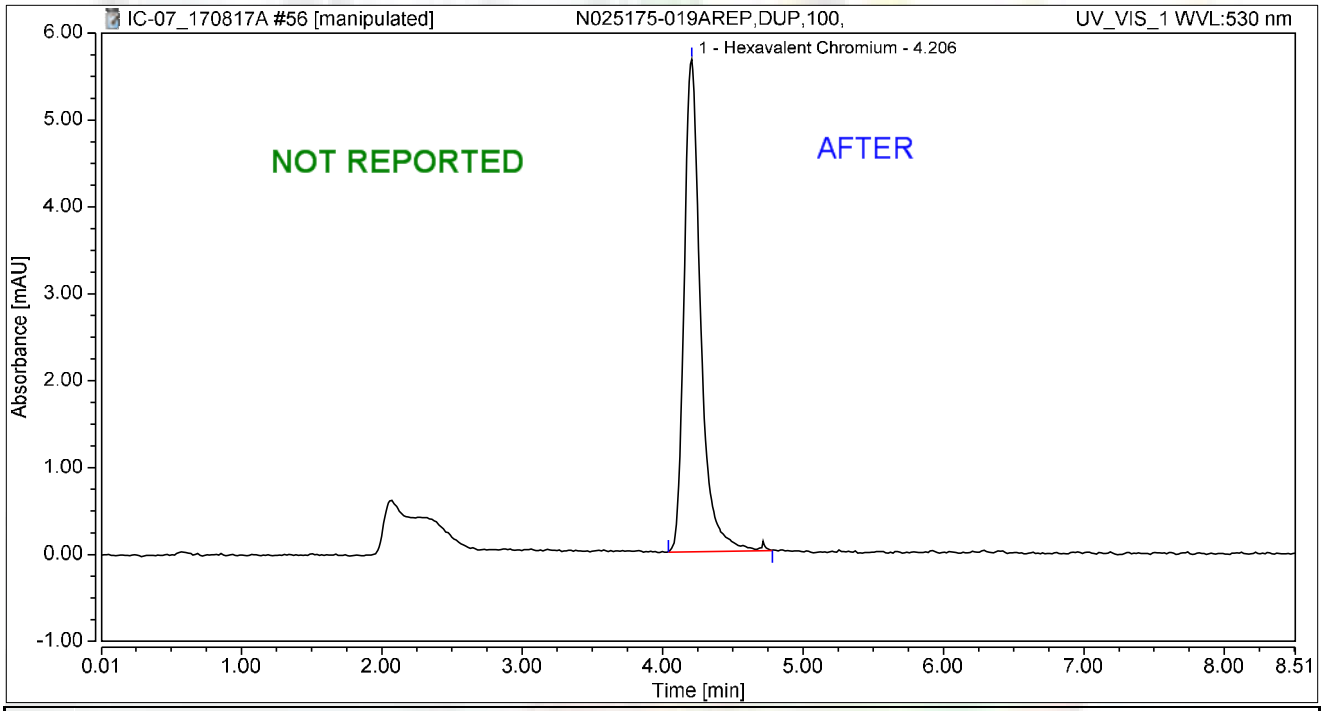
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	2.394	17.628	100.00	100.00	9.0893
Total:			**2.394**	**17.628**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025175-019AREP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.775	5.666	100.00	100.00	2.9404
Total:			**0.775**	**5.666**	**100.00**	**100.00**	

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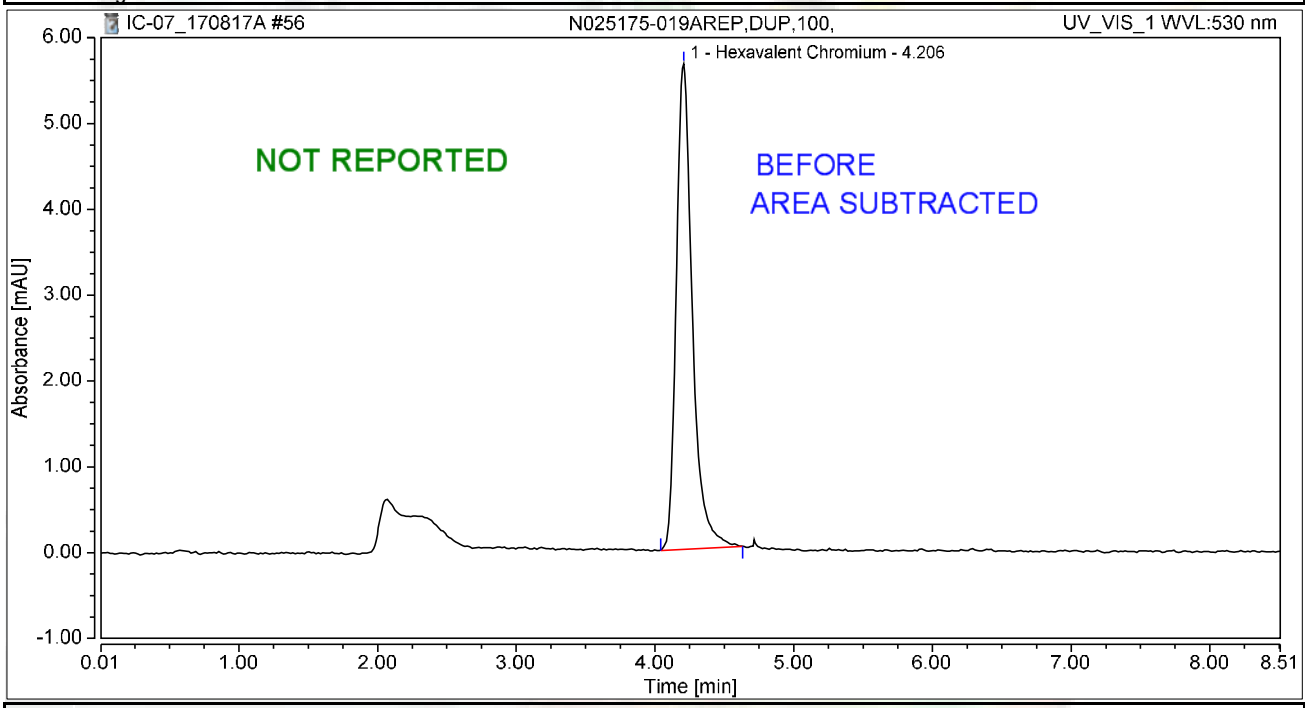
Chromatogram and Results

Injection Details

Injection Name:	**N025175-019AREP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.760	5.657	100.00	100.00	2.8864
Total:			**0.760**	**5.657**	**100.00**	**100.00**	

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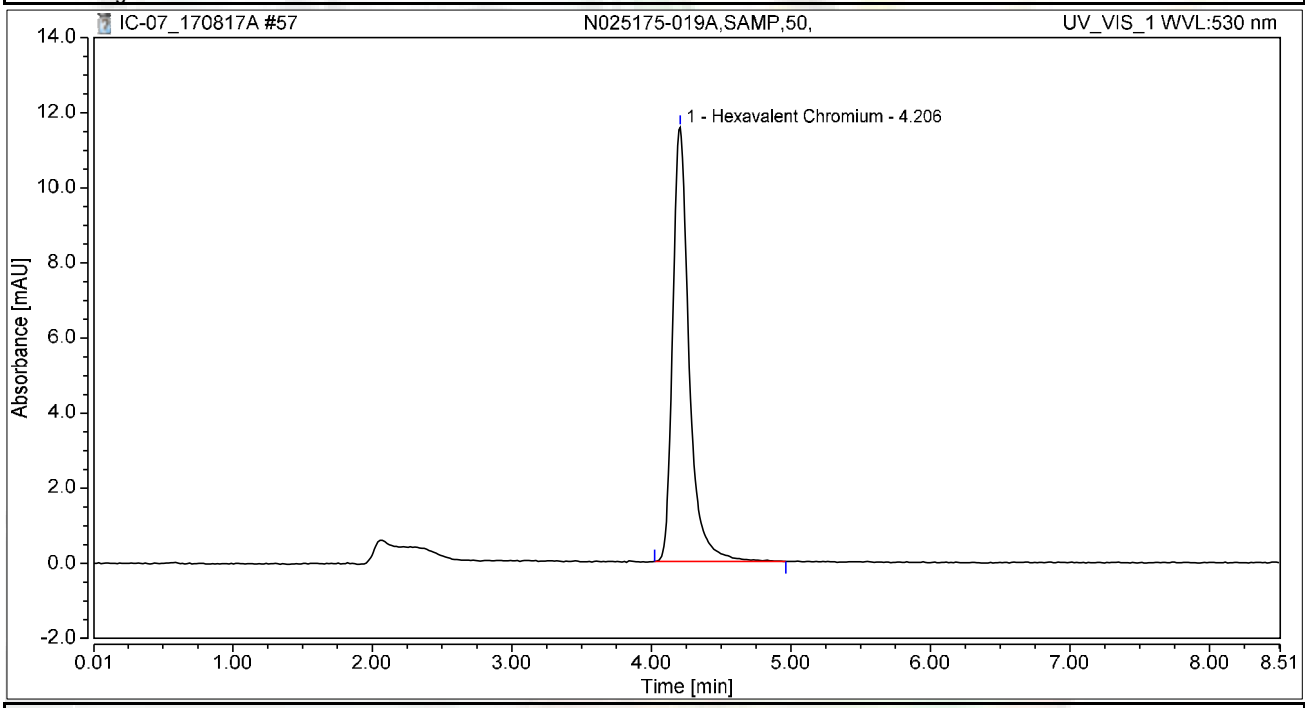
Chromatogram and Results

Injection Details

Injection Name:	**N025175-019A,SAMP,50,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

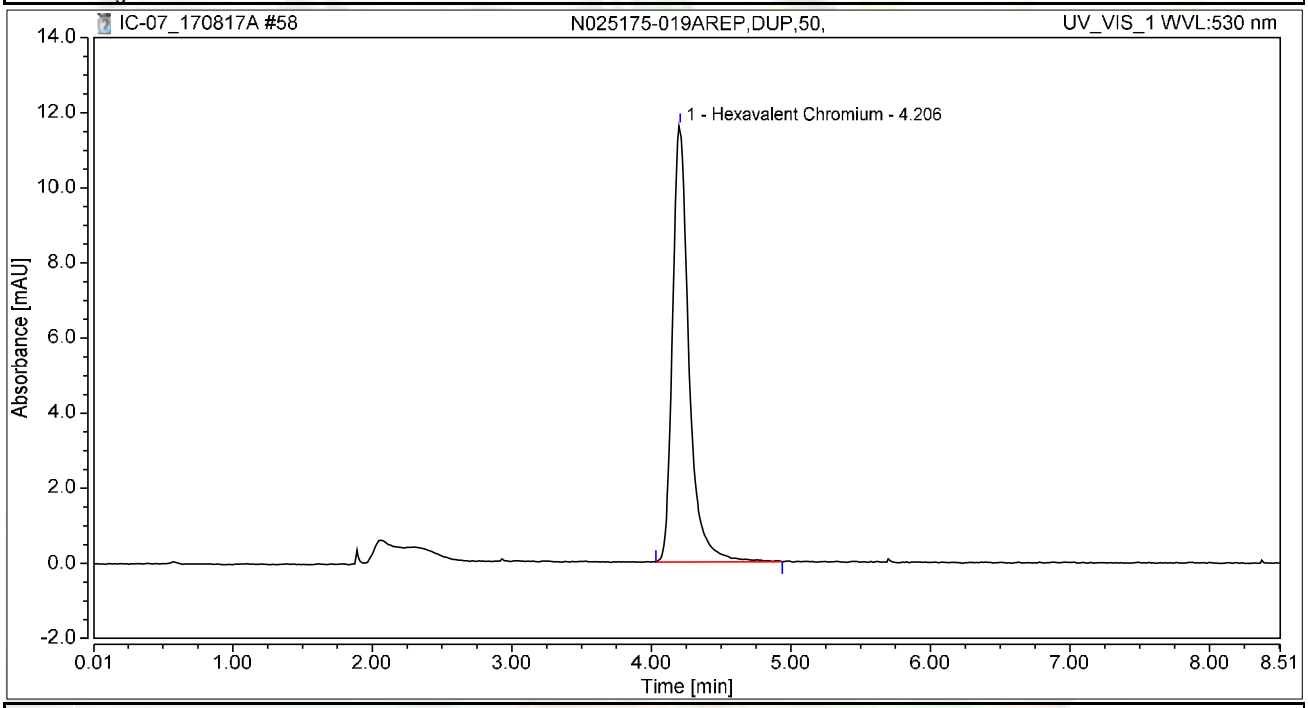
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.584	11.565	100.00	100.00	6.0117
Total:			**1.584**	**11.565**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025175-019AREP,DUP,50,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

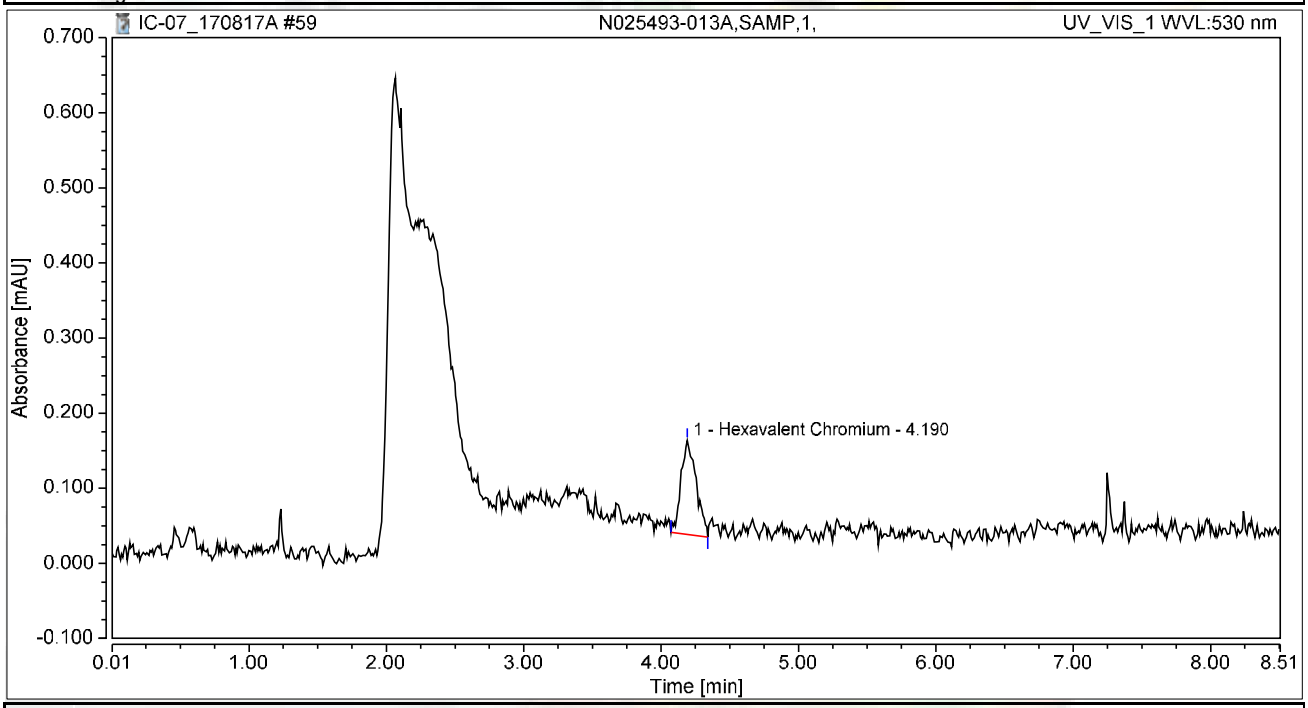
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.592	11.623	100.00	100.00	6.0449
Total:			**1.592**	**11.623**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-013A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 16:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

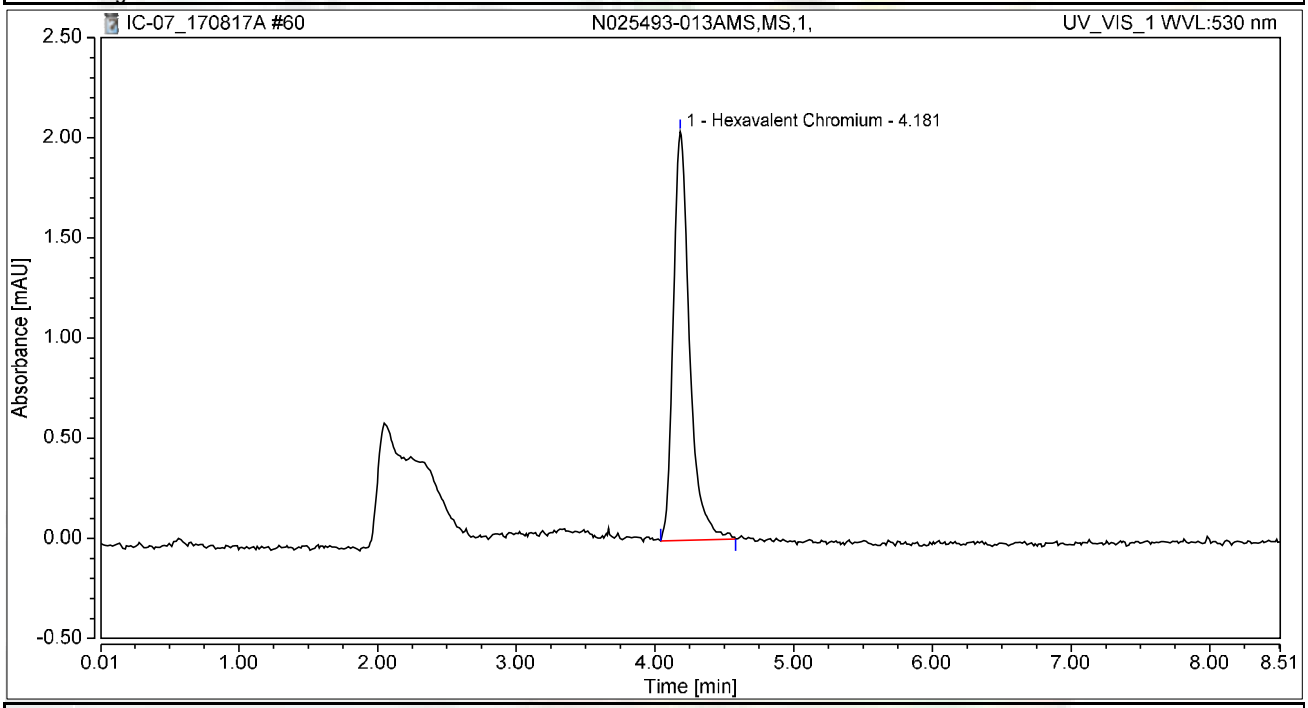
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.016	0.125	100.00	100.00	0.0606
Total:			**0.016**	**0.125**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-013AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

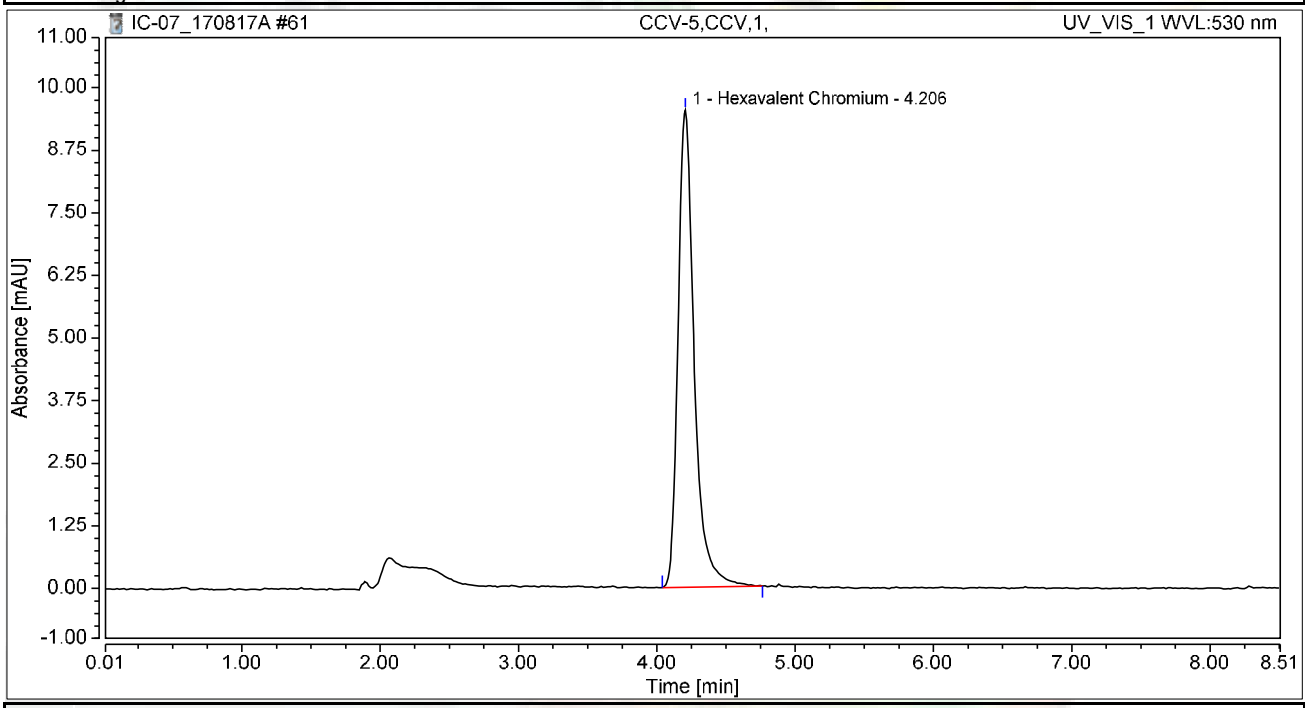
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.279	2.041	100.00	100.00	1.0586
Total:			**0.279**	**2.041**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

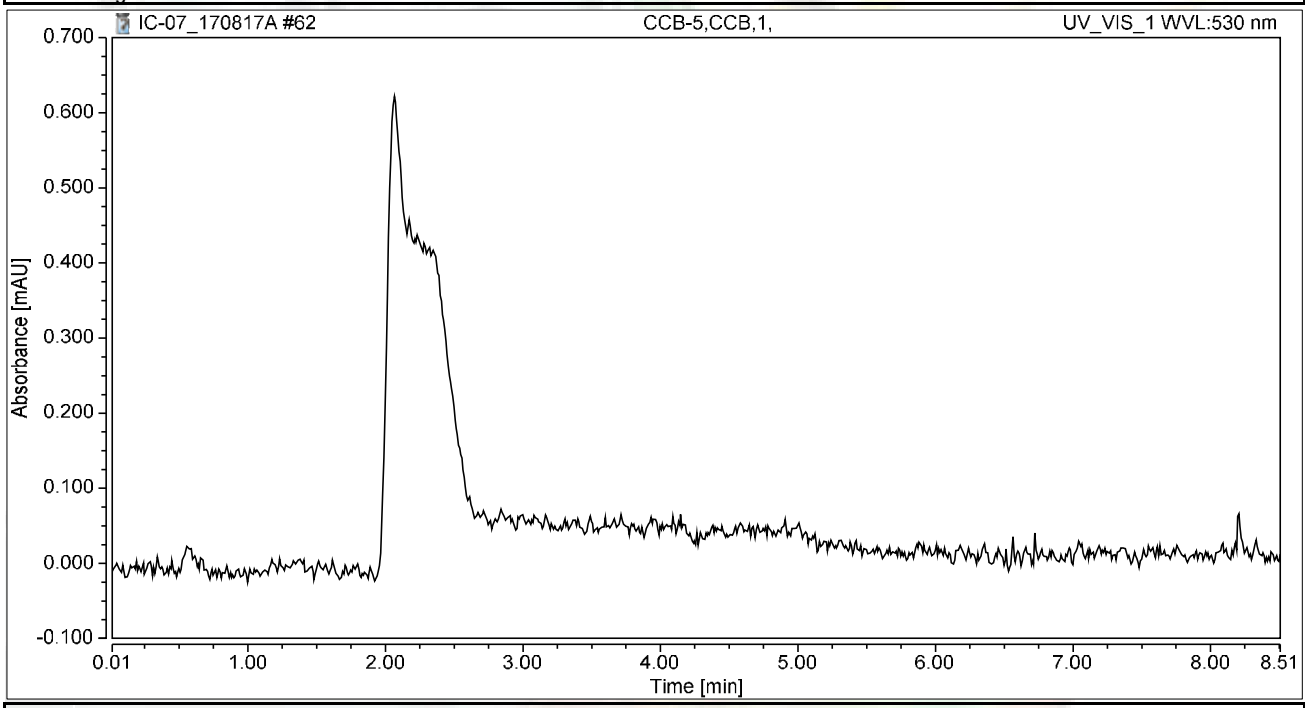
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	1.293	9.531	100.00	100.00	4.9093
Total:			**1.293**	**9.531**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

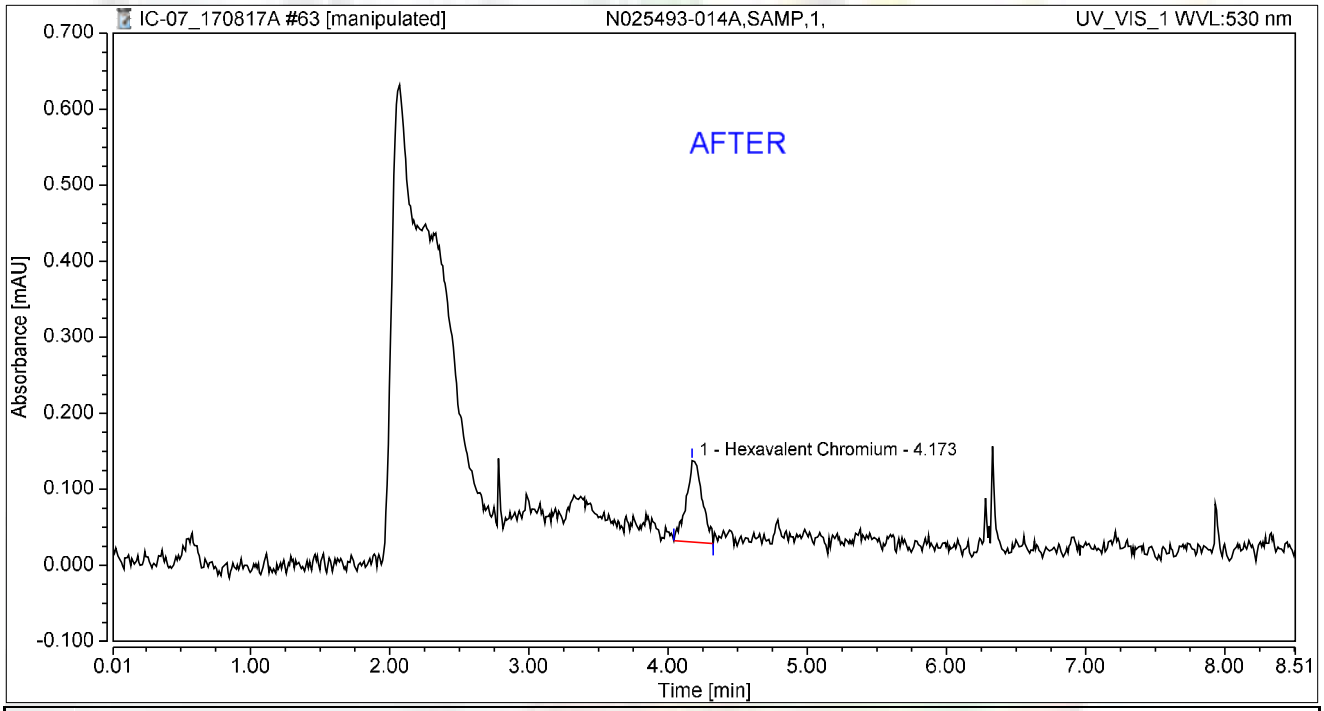
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-014A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.173	0.014	0.107	100.00	100.00	0.0542
Total:			**0.014**	**0.107**	**100.00**	**100.00**	

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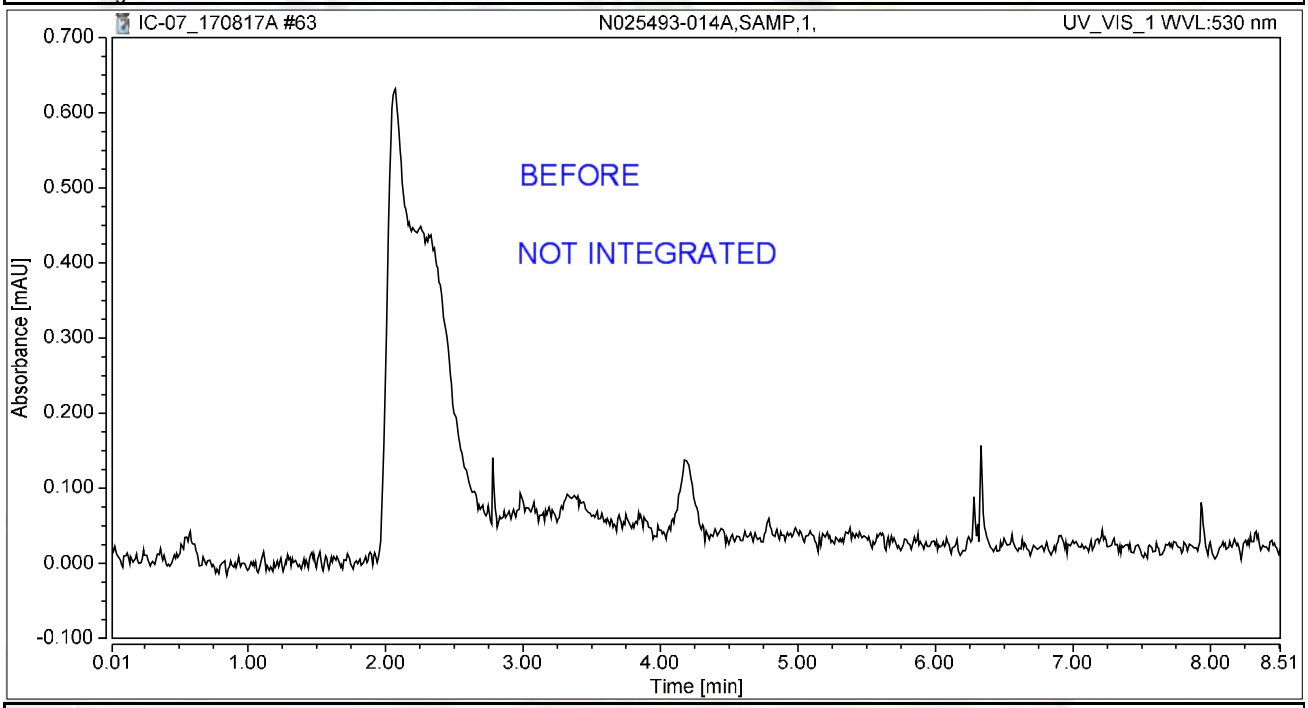
Reviewed by: Nancy 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-014A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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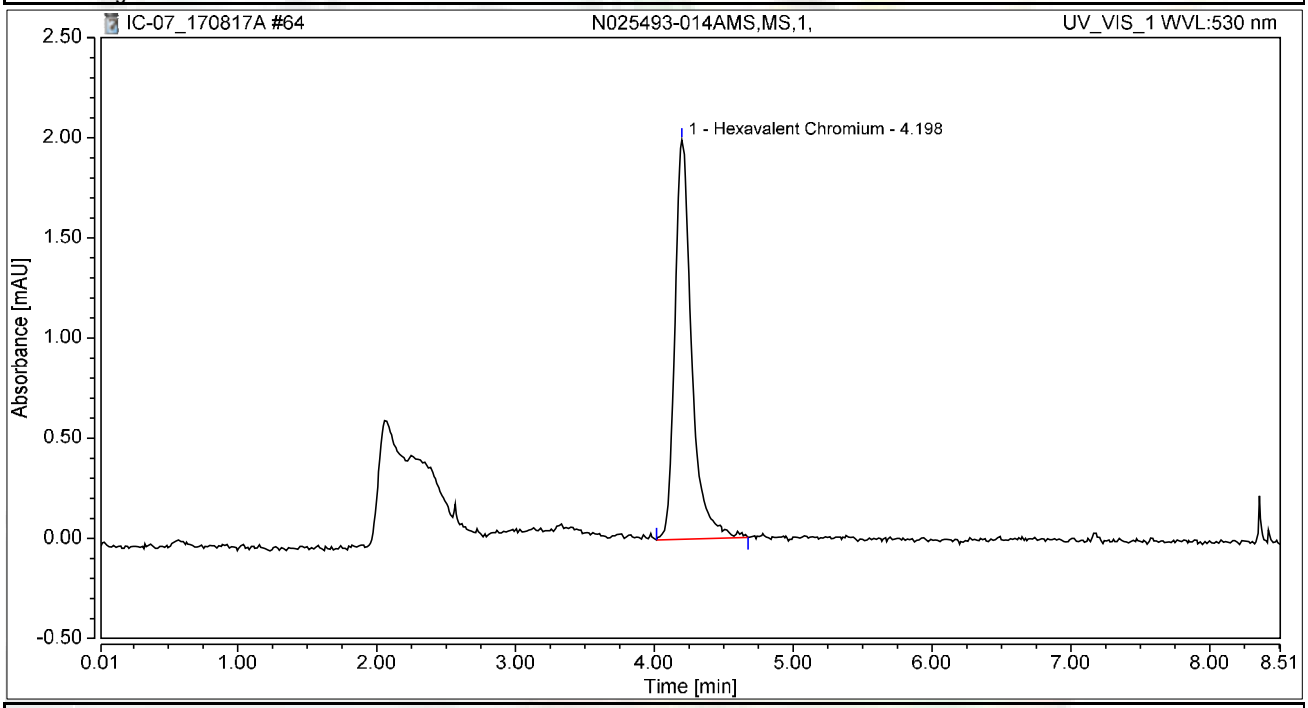
Chromatogram and Results

Injection Details

Injection Name:	**N025493-014AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

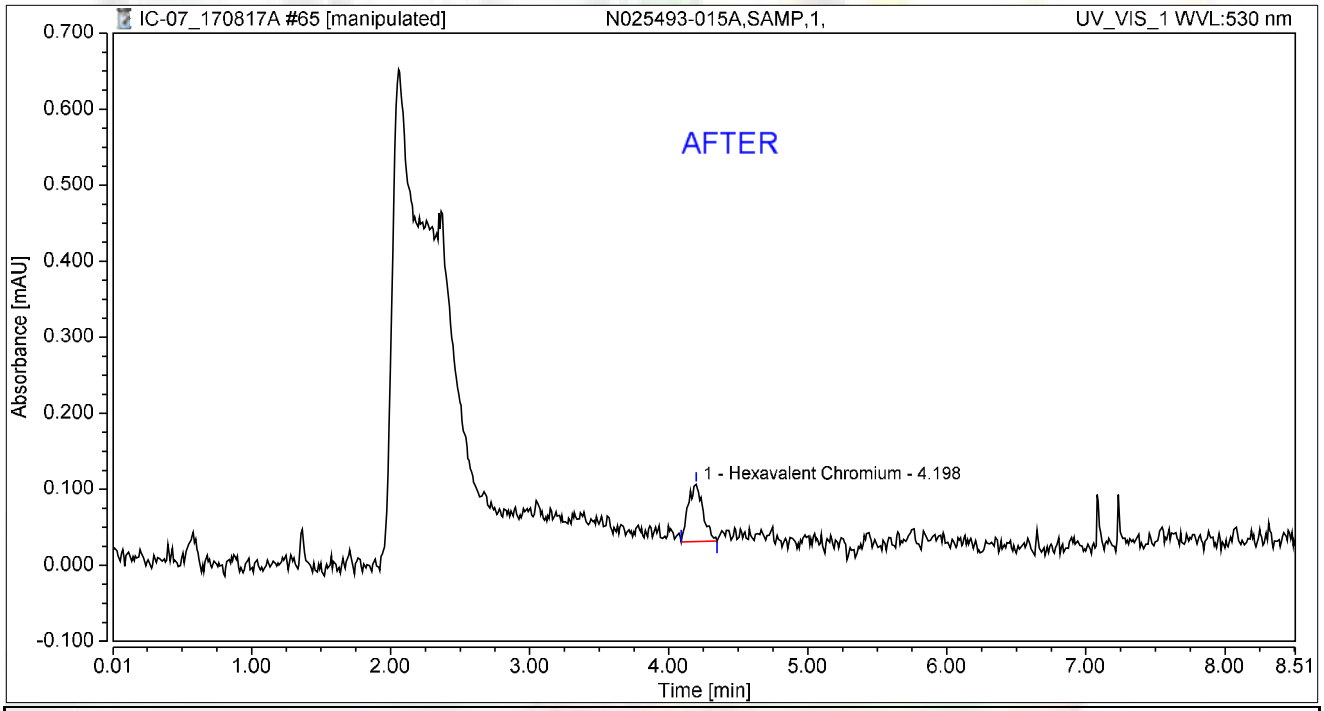
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.281	1.993	100.00	100.00	1.0658
Total:			**0.281**	**1.993**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-015A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.009	0.075	100.00	100.00	0.0356
Total:			**0.009**	**0.075**	**100.00**	**100.00**	

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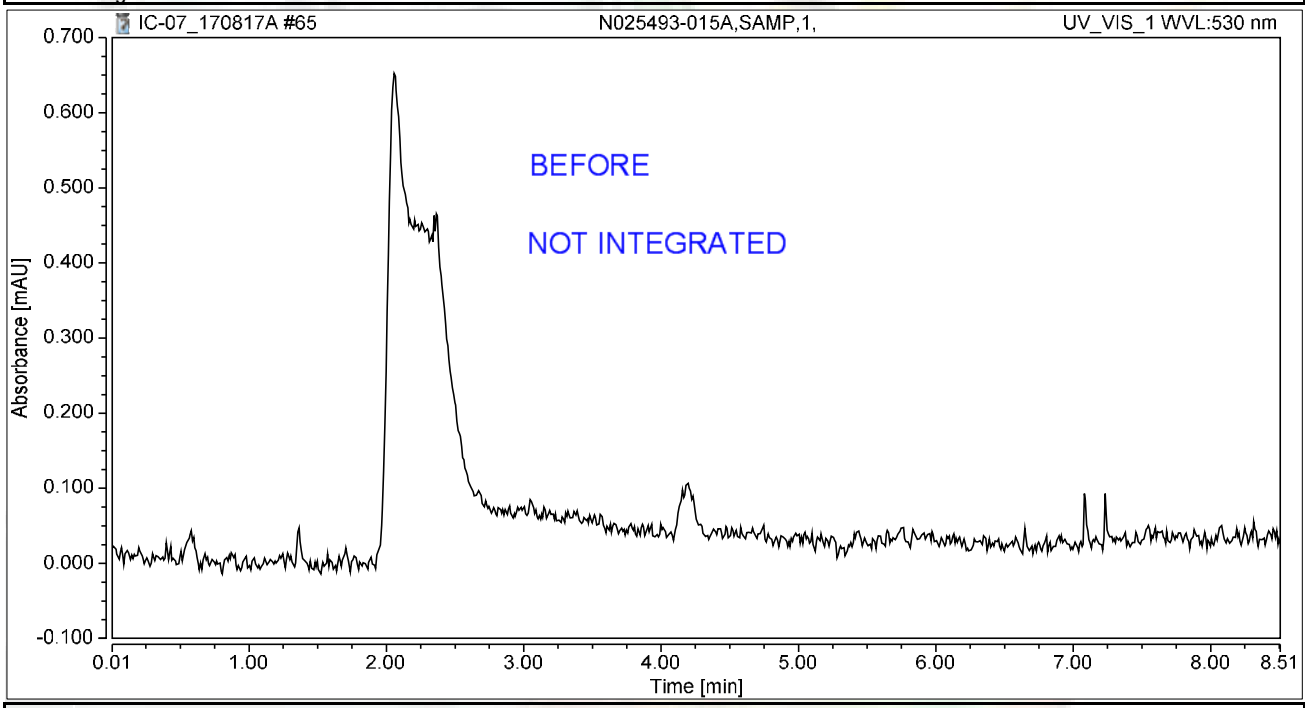
Reviewed by Nancy 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-015A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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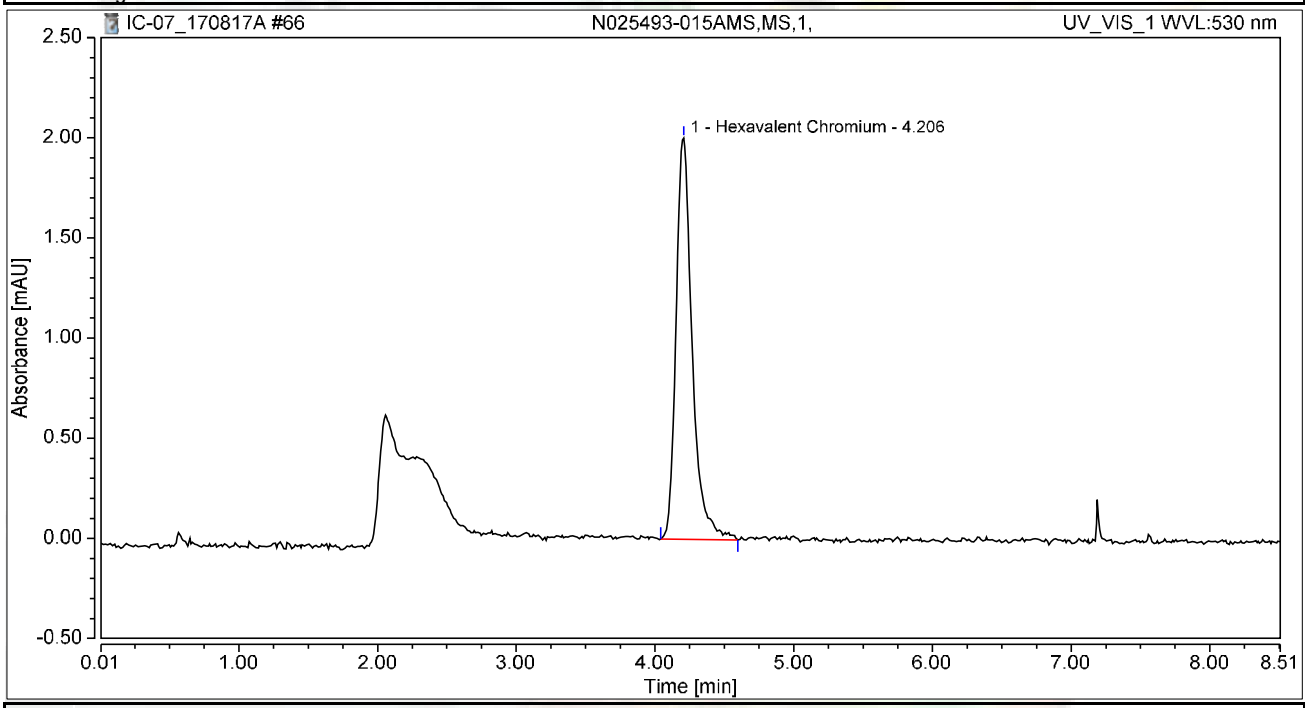
Chromatogram and Results

Injection Details

Injection Name:	**N025493-015AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 17:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

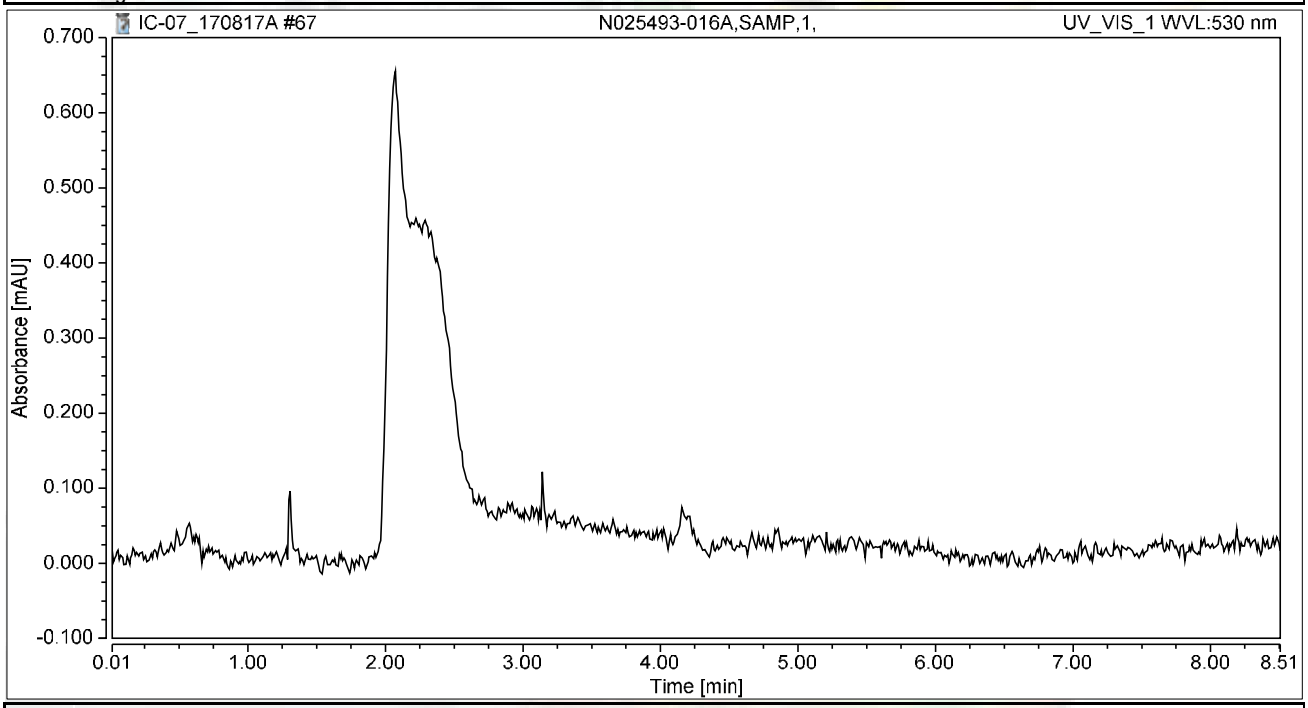
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.270	2.003	100.00	100.00	1.0264
Total:			**0.270**	**2.003**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-016A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

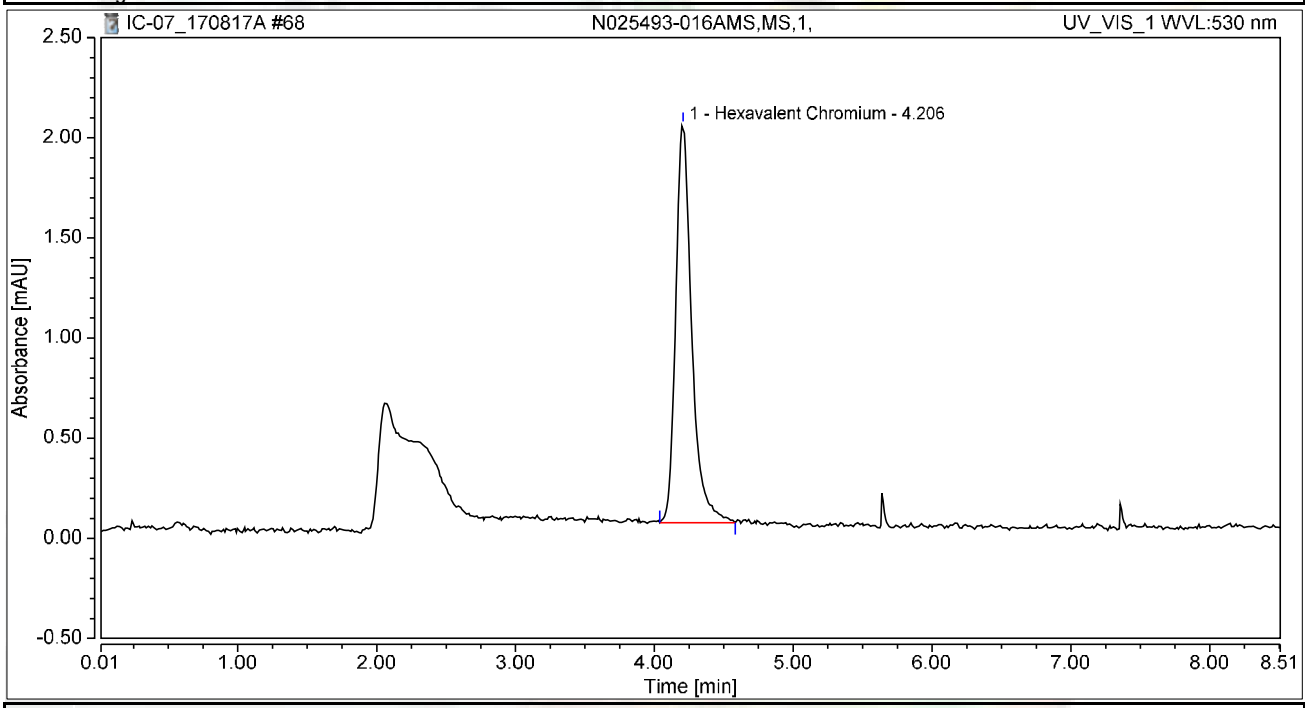
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-016AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

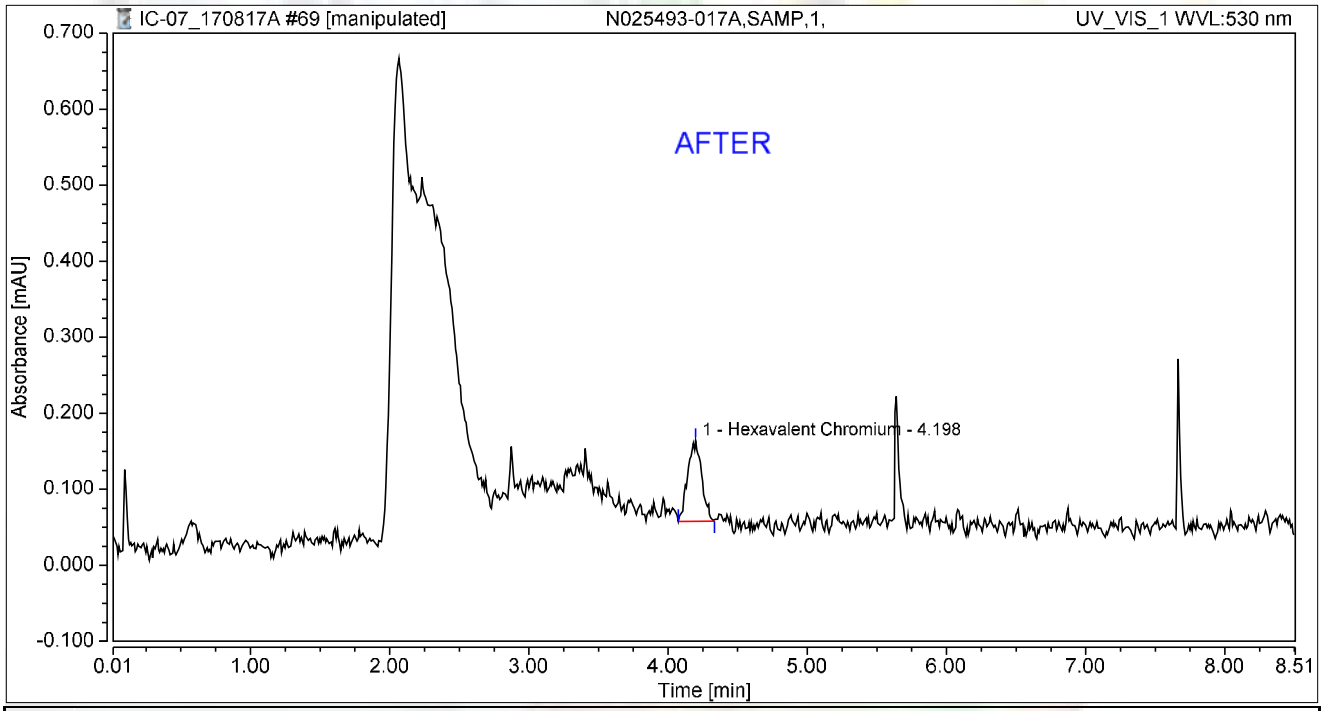
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.266	1.988	100.00	100.00	1.0091
Total:			**0.266**	**1.988**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025493-017A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.012	0.106	100.00	100.00	0.0463
Total:			**0.012**	**0.106**	**100.00**	**100.00**	

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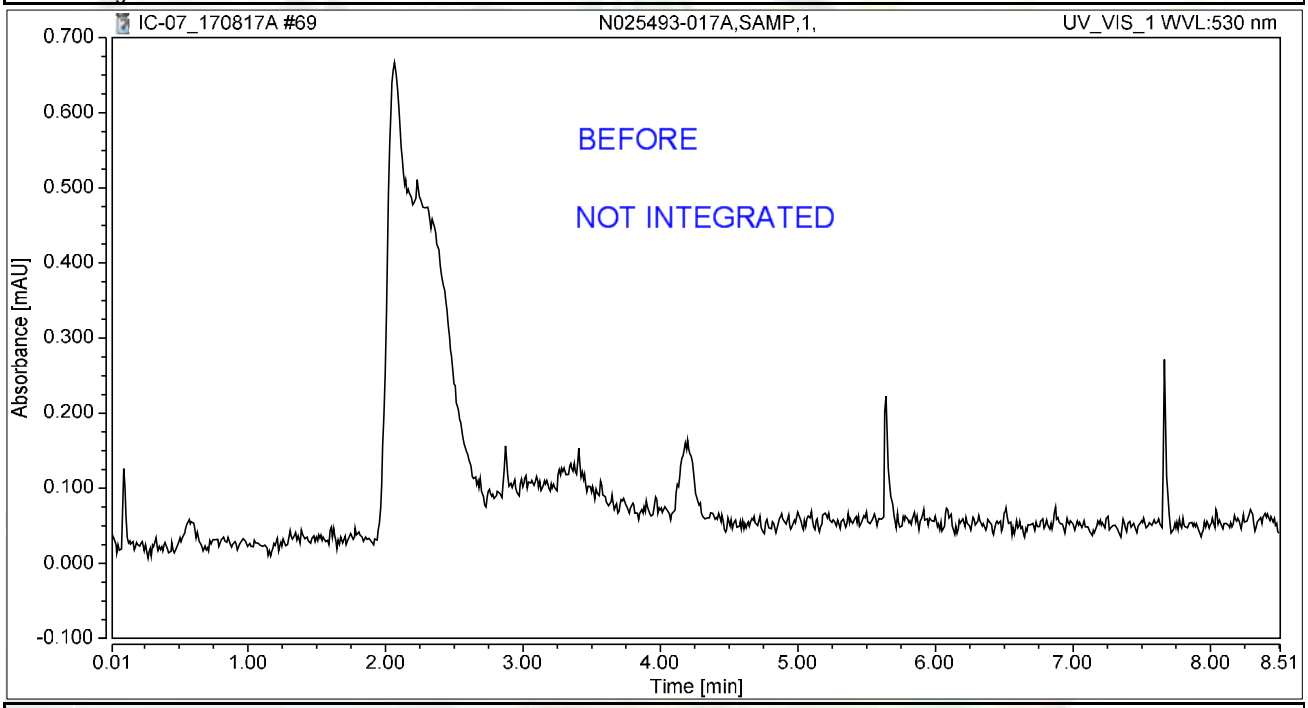
Reviewed by: Nancy 8/30/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025493-017A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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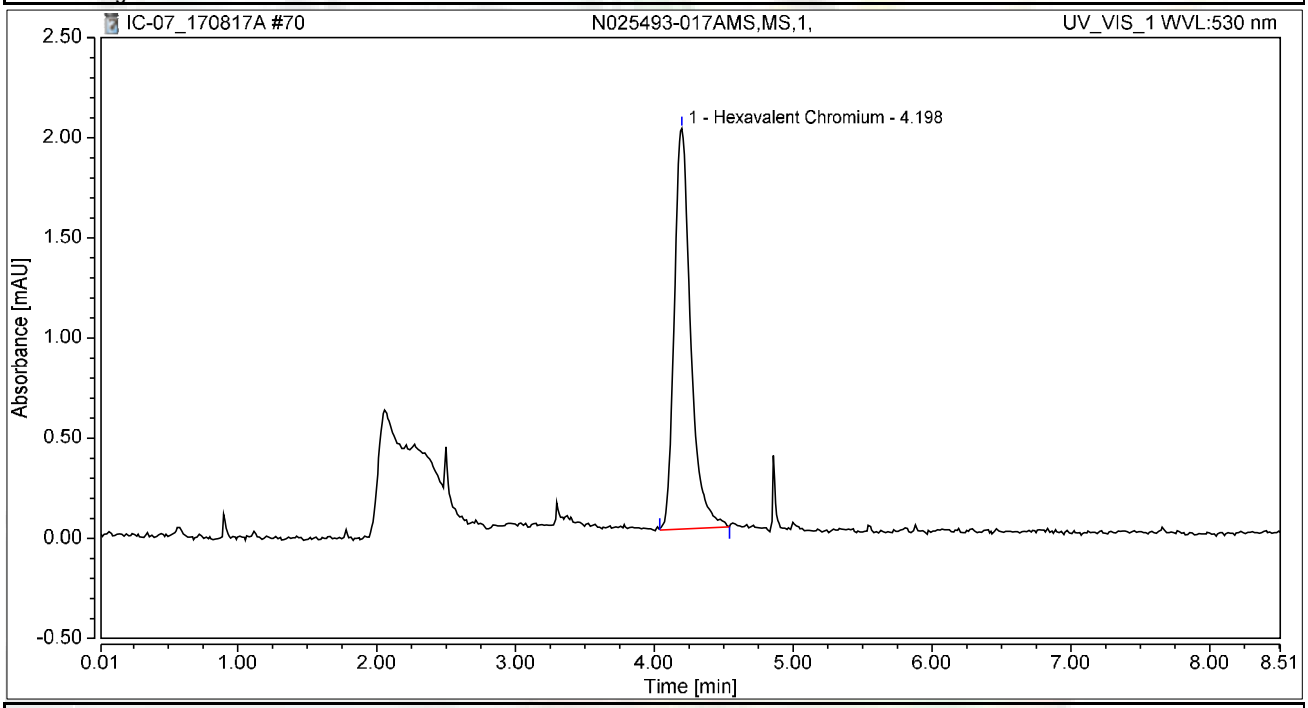
Chromatogram and Results

Injection Details

Injection Name:	**N025493-017AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

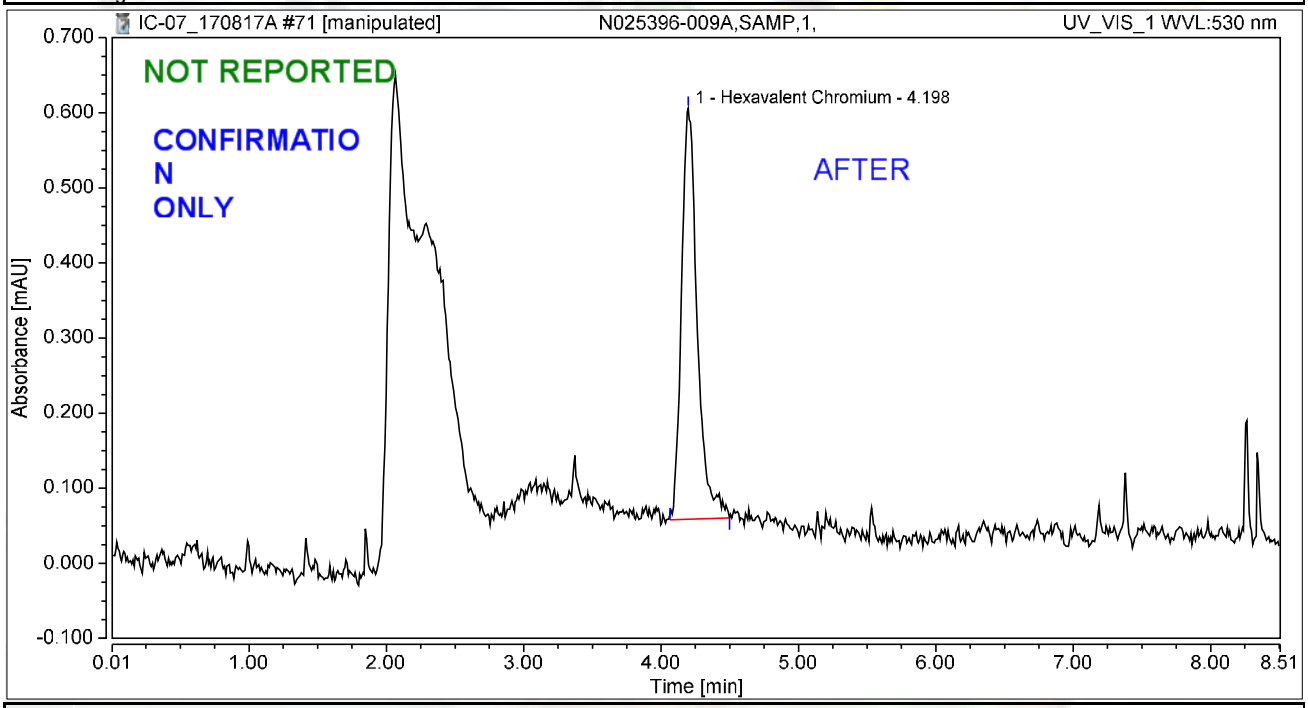
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.274	1.999	100.00	100.00	1.0394
Total:			**0.274**	**1.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025396-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.073	0.547	100.00	100.00	0.2753
Total:			**0.073**	**0.547**	**100.00**	**100.00**	

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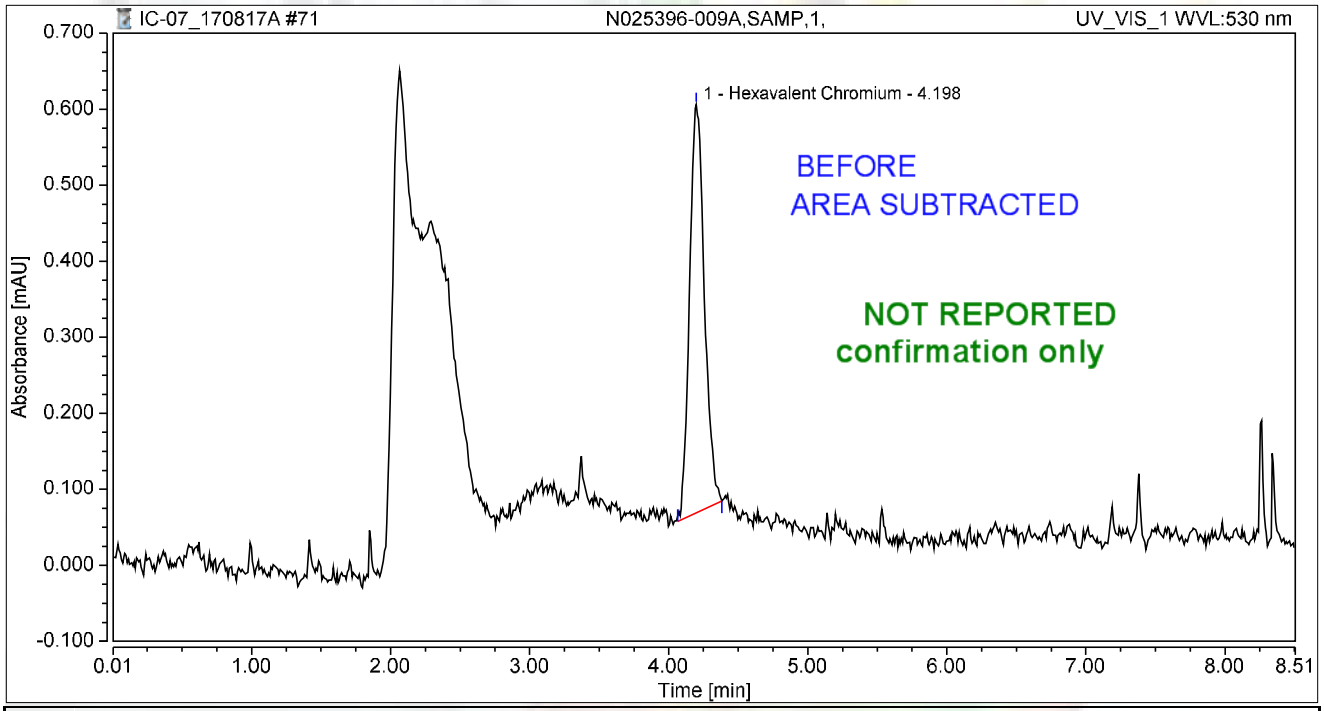
Chromatogram and Results

Injection Details

Injection Name:	**N025396-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.066	0.537	100.00	100.00	0.2516
Total:			**0.066**	**0.537**	**100.00**	**100.00**	

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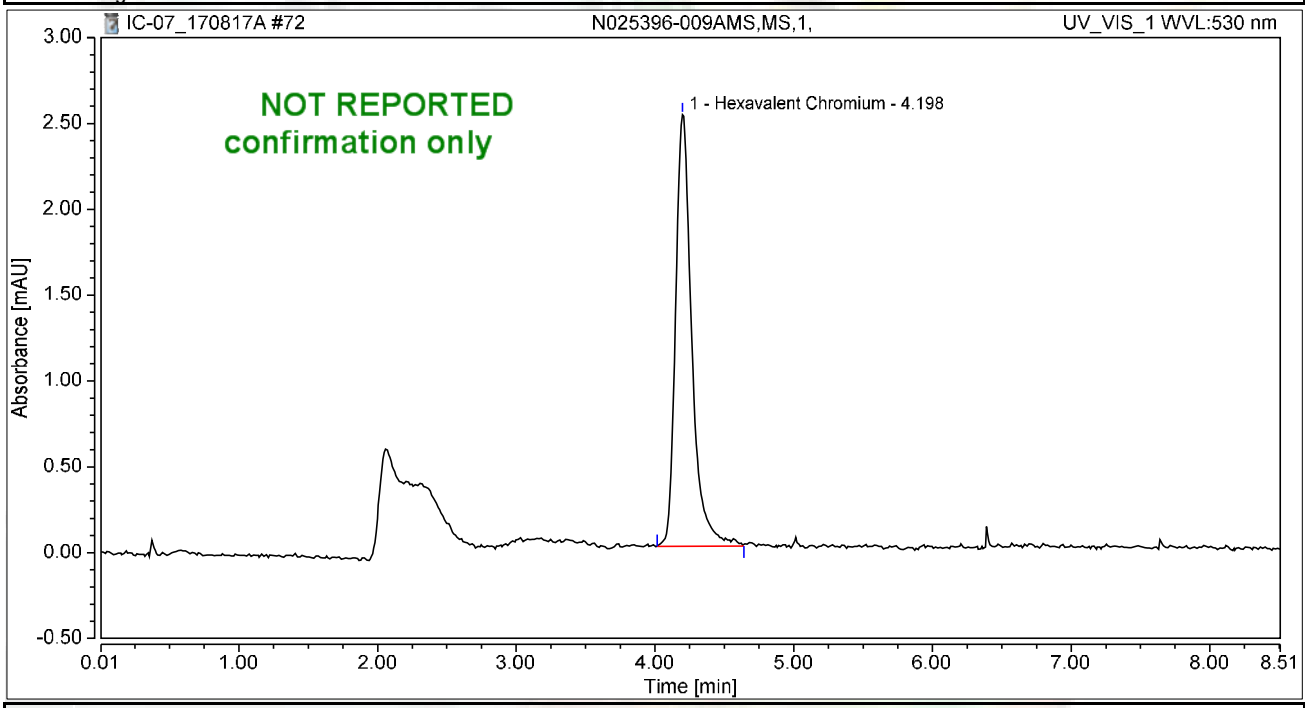
Chromatogram and Results

Injection Details

Injection Name:	**N025396-009AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 18:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

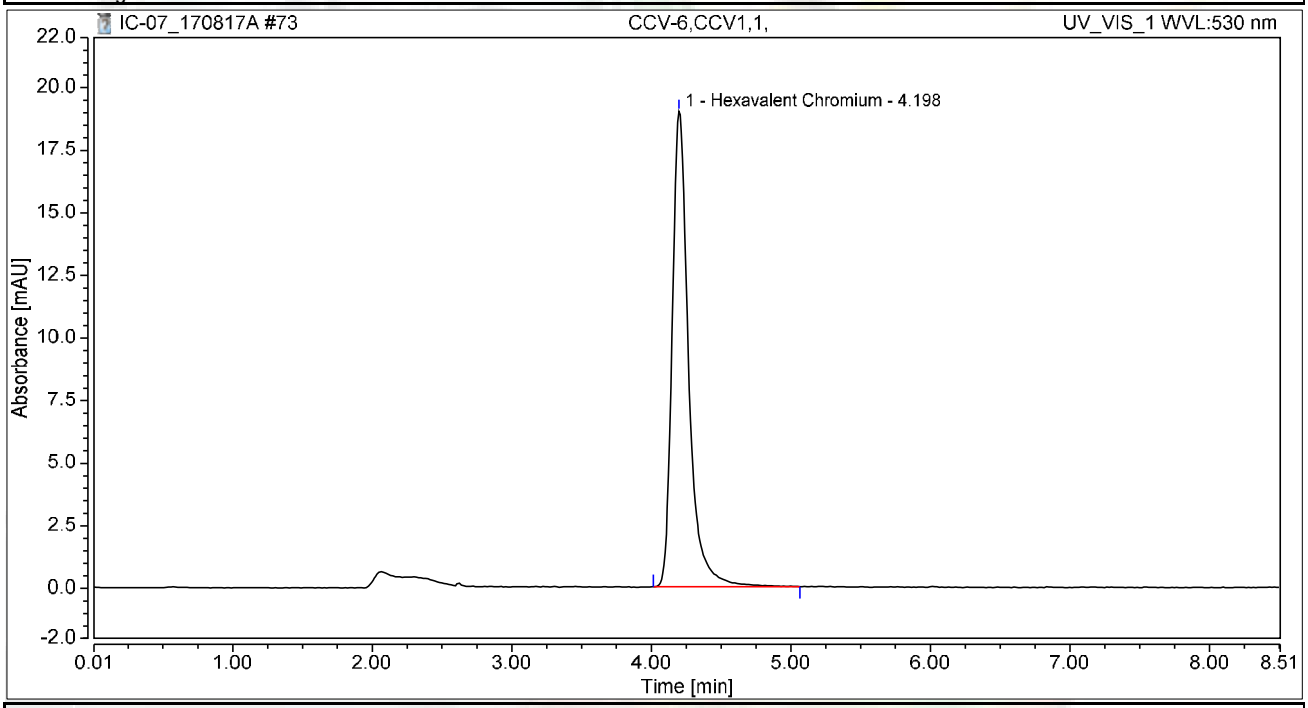
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	0.341	2.514	100.00	100.00	1.2957
Total:			**0.341**	**2.514**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 19:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

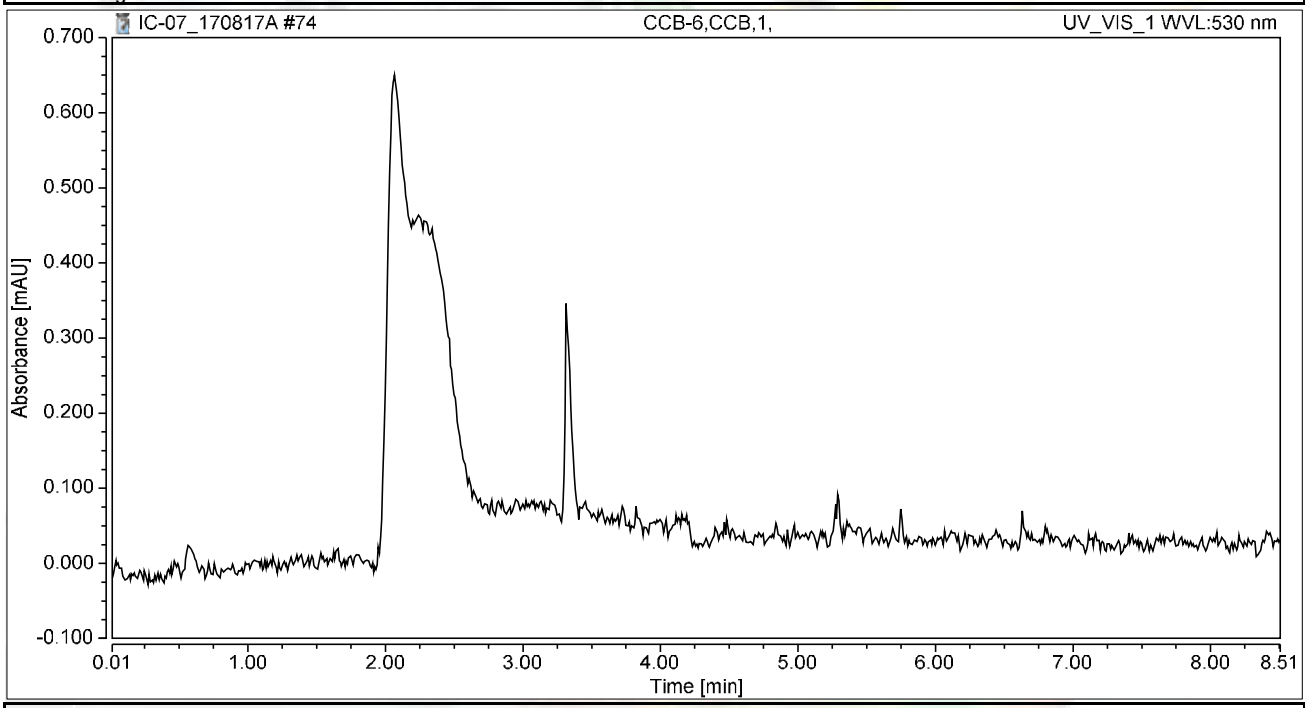
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.198	2.595	18.974	100.00	100.00	9.8499
Total:			**2.595**	**18.974**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/Aug/17 19:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117361, R117445 **Analyst:** REB

ASSET #: N025493 **Date Analyzed:** 8/22/17, 8/23/17

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value.	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
Sample Information						
8. All samples are within linear range.	X					
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RLB 08/28/17 Date: —

2nd Level Reviewer Nancy 8/31/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Water

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N025493-002E** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.3978*1

= 0.3978 mg/L

Reporting results in two significant figures:

Nitrate/Nitrite-N, mg/L = 0.40

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

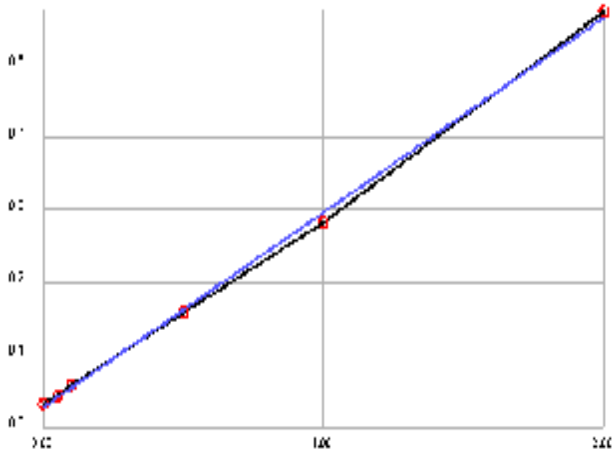
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2689x + 0.028
Correlation	.999324

Calibrant	Energy	Set	Conc
1	0.0318	0.0000	0.0140
2	0.0445	0.0500	0.0612
3	0.0577	0.1000	0.1103
4	0.1594	0.5000	0.4886
5	0.2828	1.0000	0.9475
6	0.5734	2.0000	2.0283

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117361**
Client ID: **ICV**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117361**
Client ID: **CCV**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.493	0.050	0.5000	0	98.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.501	0.050	0.5000	0	100	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.490	0.050	0.5000	0	98.0	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117361**
Client ID: **ICB**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117361**
Client ID: **CCB**	Batch ID: **R117361**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2742834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **CCB-1** SampType: **CCB** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **117445**
Client ID: **CCB** Batch ID: **R117445** TestNo: **SM4500-NO3** Analysis Date: **8/23/2017** SeqNo: **2746242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.025	0.050									

Sample ID **CCB-2** SampType: **CCB** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **117445**
Client ID: **CCB** Batch ID: **R117445** TestNo: **SM4500-NO3** Analysis Date: **8/23/2017** SeqNo: **2746255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.026	0.050									

Sample ID **CCB-3** SampType: **CCB** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **117445**
Client ID: **CCB** Batch ID: **R117445** TestNo: **SM4500-NO3** Analysis Date: **8/23/2017** SeqNo: **2746267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-4** SampType: **CCB** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **117445**
Client ID: **CCB** Batch ID: **R117445** TestNo: **SM4500-NO3** Analysis Date: **8/23/2017** SeqNo: **2746276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 08-22-2017 19:11
Time end: 08-22-2017 20:49

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:29:26	0.0136		0.0317
2	<BLANK>	20:30:26	0.0170		0.0326
3	<CAL1>	20:31:21	0.0140	[0]	0.0318
4	<CAL2>	20:32:21	0.0612	[0.05]	0.0445
5	<CAL3>	20:33:17	0.1103	[0.1]	0.0577
6	<CAL4>	20:34:00	0.4886	[0.5]	0.1594
7	<CAL5>	20:34:48	0.9475	[1]	0.2828
8	<CAL6>	20:35:37	2.0283	[2]	0.5734
9	,BLANK,BLANK,1,	20:36:19	0.0259		0.0350
10	,ICV,ICV,1,	20:37:02	0.5072		0.1644
11	,ICB,ICB,1,	20:37:50	0.0181		0.0329
12	,MB-H2O,MBLK,1,	20:38:33	0.0151		0.0321
13	,LCS-H2O,LCS,1,	20:39:17	0.4945		0.1610
14	,N0253493-001E,SAMP,1,	20:40:05	0.4075		0.1376
15	,N025493-001EDUP,DUP,1,	20:40:48	0.3807		0.1304
16	,N025493-001EMS,MS,1,	20:41:36	0.8218		0.2490
17	,N025493-001EMSD,MSD,1,	20:42:19	0.8642		0.2604
18	,N025026-009A,SAMP,10,	20:43:01	0.8772		0.2639
19	,N025026-009A,SAMP,20,	20:43:51	0.4343		0.1448
20	,N025175-008A,SAMP,10,	20:44:34	1.0717		0.3162
21	,N025175-008A,SAMP,20,	20:45:16	0.5462		0.1749
22	,CCV-1,CCV,1,	20:46:05	0.4927		0.1605
23	,CCB-1,CCB,1,	20:46:47	0.0196		0.0333
24	,BLANK,	20:47:31	0.0665		0.0459

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 08-23-2017 16:14
Time end: 08-23-2017 18:42

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:08:30	0.0222		0.0340
2	<BLANK>	18:09:31	0.0185		0.0330
3	,CCV-1,CCV,1,	18:10:25	0.5012		0.1628
4	,CCB-1,CCB,1,	18:11:26	0.0248		0.0347
5	,MB-H2O,MBLK,1,	18:12:22	0.0181		0.0329
6	,LCS-H2O,LCS,1,	18:13:17	0.5057		0.1640
7	,N025493-002E,SAMP,1,	18:14:17	0.3978		0.1350
8	,N025493-002EDUP,DUP,1,	18:15:13	0.3900		0.1329
9	,N025493-002EMS,MS,1,	18:16:08	0.8385		0.2535
10	,N025493-002EMSD,MSD,1,	18:17:08	0.8438		0.2549
11	,N025493-003E,SAMP,1,	18:18:04	0.4004		0.1357
12	,N025493-004E,SAMP,1,	18:18:59	0.3867		0.1320
13	,N025493-005E,SAMP,1,	18:20:01	0.4034		0.1365
14	,BLANK,	18:20:55	0.0248		0.0347
15	,CCV-2,CCV,1,	18:21:56	0.4871		0.1590
16	,CCB-2,CCB,1,	18:22:51	0.0259		0.0350
17	,N025493-006E,SAMP,1,	18:23:45	0.4008		0.1358
18	,N025493-007E,SAMP,1,	18:24:47	0.4060		0.1372
19	,N025493-008E,SAMP,1,	18:25:42	0.4030		0.1364
20	,N025493-011E,SAMP,1,	18:26:32	0.4042		0.1367
21	,N025493-012E,SAMP,1,	18:27:14	0.4079		0.1377
22	,N025493-013E,SAMP,1,	18:28:03	0.4068		0.1374
23	,N025493-014E,SAMP,1,	18:28:45	0.4242		0.1421
24	,N025493-017E,SAMP,1,	18:29:28	0.3863		0.1319
25	,N025503-001E,SAMP,1,	18:30:16	0.4161		0.1399
26	,BLANK,	18:31:00	0.0229		0.0342

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	**,CCV-3,CCV,1,**	18:31:49	0.4901		0.1598
28	**,CCB-3,CCB,1,**	18:32:31	0.0218		0.0339
29	**,N025503-003E,SAMP,1,**	18:33:14	0.3908		0.1331
30	**,N025503-004E,SAMP,1,**	18:34:02	0.3893		0.1327
31	**,N025503-005E,SAMP,1,**	18:34:46	0.4254		0.1424
32	**,N025503-006E,SAMP,1,**	18:35:28	0.3967		0.1347
33	**,N025503-007E,SAMP,1,**	18:36:17	0.4112		0.1386
34	**,N025503-008E,SAMP,1,**	18:36:59	0.4012		0.1359
35	**,N025503-009E,SAMP,1,**	18:37:43	0.3989		0.1353
36	**,BLANK,**	18:38:32	0.0159		0.0323
37	**,CCV-3,CCV,1,**	18:39:14	0.4715		0.1548
38	**,CCB-3,CCB,1,**	18:39:57	0.0162		0.0324

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 08/22/17,8/23/17
Time Analyzed:07:11 PM
Analyzed By: REB

Reagent ID #
Ammonium Chloride reagent/Buffer: R170731C
Color reagent: R170731D
2% Copper Sulfate: R170731B
Ammonium Hydroxide: CINV-170424A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)
1)	N025493-001E		6.52						
2)	N025493-002E		7.69						
3)	N025493-003E		7.62						
4)	N025493-004E		7.94						
5)	N025493-005E		7.77						
6)	N025493-006E		6.13						
7)	N025493-007E		7.22						
8)	N025493-008E		7.16						
9)	N025493-011E		6.96						
10)	N025493-012E		7.86						
11)	N025493-013E		8.73						
12)	N025493-014E		8.03						
13)	N025493-017E		6.88						
14)									
15)									
16)									
17)									
18)									
19)									
20)									
21)									
22)									
23)									

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63440
ASSET #: N025493

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/28/2017

Method:

[X] EPA 6010B / 200.7 DISS
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 8/31/2017 Date: —

2nd Level Reviewer 8/31/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N025493-01B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.01736 (0.03193) * 1 * (25/25) * 1000

Iron , ug/L = 17.36 (31.93)

Reporting results in two significant figures,

Iron , ug/L = 17 (32)

= ND since result is < RL

for 8/31/2017

% RSD SUMMARY

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment	
CalBlk	IBLK	1	Fe	0	74.019	15	<PQL	
Standard1	ICAL	1	Fe	0.02	0.45	15	PASS	
Standard2	ICAL	1	Fe	0.05	1.48	15	PASS	
Standard3	ICAL	1	Fe	2	0.15	15	PASS	
Standard4	ICAL	1	Fe	5	0.66	15	PASS	
Standard5	ICAL	1	Fe	7.5	0.29	15	PASS	
Standard6	ICAL	1	Fe	10	0.11	15	PASS	
Standard7	ICAL	1	Fe	20	0.037	15	PASS	
ICV	ICV	1	Fe	9.9	0.14	15	PASS	
ICB	ICB	1	Fe	0.004	36.85	15	<PQL	
LLICV	CCV1	1	Fe	0.024	1.93	20	PASS	
LLICV	CCV1	1	Fe	0.024	3.52	20	PASS	
ICSA1	ICSA	1	Fe	184.5	0.21	15	PASS	
ICSAB1	ICSAB	1	Fe	202.27	0.1	15	PASS	
CCV1	CCV	1	Fe	10.14	0.14	15	PASS	
CCB1	CCB	1	Fe	0.004	42.75	15	<PQL	
CCV2	CCV	1	Fe	10.9	0.56	15	PASS	
CCB2	CCB	1	Fe	0.0039	50.91	15	<PQL	
MB-63440	MBLK	1	Fe	0.00072	153.35	15	<PQL	
LCS-63440	LCS	1	Fe	0.1	0.44	15	PASS	
N025493-001B	SAMP	1	Fe	0.017	2.082	15	PASS	
N025493-001B	SAMP	5	Fe	0.0027	24.29	15	<PQL	
N025493-001B-PS	PS	1	Fe	0.11	1.38	15	PASS	
N025493-001B-MS	MS	1	Fe	0.1	1.54	15	PASS	
N025493-001B-MSD	MSD	1	Fe	0.1	1.89	15	PASS	
N025493-002B	SAMP	1	Fe	0.056	2.29	15	PASS	NR
N025493-003B	SAMP	1	Fe	0.015	5.79	15	PASS	
N025493-004B	SAMP	1	Fe	0.0043	32.39	15	<PQL	
CCV3	CCV	1	Fe	10.13	0.13	15	PASS	
CCB3	CCB	1	Fe	0.0051	23.17	15	<PQL	
N025493-005B	SAMP	1	Fe	0.0078	7.33	15	PASS	
N025493-006B	SAMP	1	Fe	0.0054	5.12	15	PASS	
N025493-007B	SAMP	1	Fe	0.43	0.55	15	PASS	NR
N025493-008B	SAMP	1	Fe	0.014	8.47	15	PASS	
N025493-011B	SAMP	1	Fe	0.032	2.032	15	PASS	
N025493-012B	SAMP	1	Fe	0.0091	4.19	15	PASS	
N025493-013B	SAMP	1	Fe	0.034	1.43	15	PASS	
N025493-014B	SAMP	1	Fe	0.01	5.78	15	PASS	
N025493-017B	SAMP	1	Fe	0.012	5.87	15	PASS	
CCV4	CCV	1	Fe	10.15	0.04	15	PASS	
CCB4	CCB	1	Fe	0.005	36.38	15	<PQL	
LLCCV1	CCV2	1	Fe	0.025	2.47	20	PASS	

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA2	ICSA	1	Fe	185.17	0.042	15	PASS
ICSAB2	ICSAB	1	Fe	202.76	0.22	15	PASS
CCV5	CCV	1	Fe	10.13	0.032	15	PASS
CCB5	CCB	1	Fe	0.0057	50.87	15	<PQL
CCV6	CCV	1	Fe	10.12	0.16	15	PASS
CCB6	CCB	1	Fe	0.0058	39.42	15	<PQL
CCV7	CCV	1	Fe	10.11	0.03	15	PASS
CCB7	CCB	1	Fe	0.0062	35.85	15	<PQL
CCV8	CCV	1	Fe	10.59	0.48	15	PASS
CCB8	CCB	1	Fe	0.0068	19.11	15	<PQL
LLCCV2	CCV2	1	Fe	0.025	4.075	20	PASS
ICSA3	ICSA	1	Fe	184.43	0.032	15	PASS
ICSAB3	ICSAB	1	Fe	201.9	0.057	15	PASS
CCV9	CCV	1	Fe	10.47	0.62	15	PASS
CCB9	CCB	1	Fe	0.0036	23.47	15	<PQL
N025493-002B	SAMP	1	Fe	0.0017	4.2	15	PASS
N025493-007B	SAMP	1	Fe	-0.00045	134.022	15	<PQL
CCV10	CCV	1	Fe	8.68	27.48	15	NR!
CCV10	CCV	1	Fe	10.092	0.16	15	PASS
CCB10	CCB	1	Fe	0.0032	45.78	15	<PQL
CCV11	CCV	1	Fe	10.056	0.018	15	PASS
CCB11	CCB	1	Fe	0.0031	41.56	15	<PQL
LLCCV3	CCV2	1	Fe	0.026	1.79	20	PASS
ICSA4	ICSA	1	Fe	181.74	0.046	15	PASS
ICSAB4	ICSAB	1	Fe	199	0.094	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170828C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/28/2017	07:40:35 PM
2	Standard1	ICAL	1	08/28/2017	07:44:53 PM
3	Standard2	ICAL	1	08/28/2017	07:49:10 PM
11	Standard3	ICAL	1	08/28/2017	07:53:59 PM
12	Standard4	ICAL	1	08/28/2017	07:58:49 PM
6	Standard5	ICAL	1	08/28/2017	08:03:40 PM
7	Standard6	ICAL	1	08/28/2017	08:08:28 PM
8	Standard7	ICAL	1	08/28/2017	08:12:47 PM
9	ICV	ICV	1	08/28/2017	08:18:09 PM
1	ICB	ICB	1	08/28/2017	08:22:31 PM
2	LLICV	CCV1	1	08/28/2017	08:41:30 PM
2	LLICV	CCV1	1	08/28/2017	08:59:32 PM
4	ICSA1	ICSA	1	08/28/2017	09:03:50 PM
5	ICSAB1	ICSAB	1	08/28/2017	09:09:47 PM
38	MB-63439	MBLK	1	08/28/2017	09:15:45 PM
39	LCS-63439	LCS	1	08/28/2017	09:20:04 PM
40	N025493-001C	SAMP	1	08/28/2017	09:24:53 PM
41	N025493-001C	SAMP	5	08/28/2017	09:29:12 PM
42	N025493-001C-PS	PS	1	08/28/2017	09:34:01 PM
43	N025493-001C-MS	MS	1	08/28/2017	09:38:22 PM
44	N025493-001C-MSD	MSD	1	08/28/2017	09:42:43 PM
45	N025493-002C	SAMP	1	08/28/2017	09:47:04 PM
46	N025493-003C	SAMP	1	08/28/2017	09:51:23 PM
47	N025493-004C	SAMP	1	08/28/2017	09:56:12 PM
7	CCV1	CCV	1	08/28/2017	10:00:33 PM
1	CCB1	CCB	1	08/28/2017	10:04:53 PM
48	N025493-005C	SAMP	1	08/28/2017	10:09:11 PM
49	N025493-006C	SAMP	1	08/28/2017	10:13:31 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
50	N025493-007C	SAMP	1	08/28/2017	10:17:52 PM
51	N025493-008C	SAMP	1	08/28/2017	10:22:13 PM
52	N025493-011C	SAMP	1	08/28/2017	10:26:33 PM
53	N025493-012C	SAMP	1	08/28/2017	10:30:54 PM
54	N025493-013C	SAMP	1	08/28/2017	10:35:13 PM
55	N025493-014C	SAMP	1	08/28/2017	10:39:33 PM
56	N025493-017C	SAMP	1	08/28/2017	10:43:52 PM
38	MB-63439	MBLK	1	08/28/2017	10:48:45 PM
7	CCV2	CCV	1	08/28/2017	10:53:04 PM
1	CCB2	CCB	1	08/28/2017	10:58:54 PM
57	MB-63440	MBLK	1	08/28/2017	11:03:10 PM
58	LCS-63440	LCS	1	08/28/2017	11:07:28 PM
59	N025493-001B	SAMP	1	08/28/2017	11:12:17 PM
60	N025493-001B	SAMP	5	08/28/2017	11:16:37 PM
61	N025493-001B-PS	PS	1	08/28/2017	11:21:26 PM
62	N025493-001B-MS	MS	1	08/28/2017	11:26:17 PM
63	N025493-001B-MSD	MSD	1	08/28/2017	11:31:06 PM
64	N025493-002B	SAMP	1	08/28/2017	11:35:26 PM
65	N025493-003B	SAMP	1	08/28/2017	11:39:46 PM
66	N025493-004B	SAMP	1	08/28/2017	11:44:05 PM
7	CCV3	CCV	1	08/28/2017	11:48:24 PM
1	CCB3	CCB	1	08/28/2017	11:52:43 PM
67	N025493-005B	SAMP	1	08/28/2017	11:57:01 PM
68	N025493-006B	SAMP	1	08/29/2017	12:01:19 AM
69	N025493-007B	SAMP	1	08/29/2017	12:05:39 AM
70	N025493-008B	SAMP	1	08/29/2017	12:10:29 AM
71	N025493-011B	SAMP	1	08/29/2017	12:15:20 AM
72	N025493-012B	SAMP	1	08/29/2017	12:19:40 AM
73	N025493-013B	SAMP	1	08/29/2017	12:24:00 AM
74	N025493-014B	SAMP	1	08/29/2017	12:28:52 AM
75	N025493-017B	SAMP	1	08/29/2017	12:33:12 AM
98	MB-63441	MBLK	1	08/29/2017	12:37:32 AM
7	CCV4	CCV	1	08/29/2017	12:41:52 AM
1	CCB4	CCB	1	08/29/2017	12:46:12 AM
2	LLCCV1	CCV2	1	08/29/2017	12:50:28 AM
4	ICSA2	ICSA	1	08/29/2017	12:54:46 AM
5	ICSAB2	ICSAB	1	08/29/2017	01:00:41 AM
99	LCS-63441	LCS	1	08/29/2017	01:06:39 AM
100	N025503-001C	SAMP	1	08/29/2017	01:11:30 AM
101	N025503-001C	SAMP	5	08/29/2017	01:15:52 AM
102	N025503-001C-PS	PS	1	08/29/2017	01:20:43 AM
103	N025503-001C-MS	MS	1	08/29/2017	01:25:05 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	01:29:27 AM
105	N025503-003C	SAMP	1	08/29/2017	01:33:49 AM
106	N025503-004C	SAMP	1	08/29/2017	01:38:53 AM
107	N025503-005C	SAMP	1	08/29/2017	01:43:14 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
108	N025503-006C	SAMP	1	08/29/2017	01:48:06 AM
7	CCV5	CCV	1	08/29/2017	01:52:27 AM
1	CCB5	CCB	1	08/29/2017	01:56:47 AM
109	N025503-007C	SAMP	1	08/29/2017	02:01:05 AM
110	N025503-008C	SAMP	1	08/29/2017	02:05:26 AM
111	N025503-009C	SAMP	1	08/29/2017	02:10:17 AM
112	N025503-010C	SAMP	1	08/29/2017	02:14:39 AM
113	N025503-011C	SAMP	1	08/29/2017	02:19:33 AM
114	N025503-012C	SAMP	1	08/29/2017	02:23:55 AM
115	N025503-013C	SAMP	1	08/29/2017	02:28:17 AM
116	N025503-014C	SAMP	1	08/29/2017	02:33:08 AM
117	N025503-015C	SAMP	1	08/29/2017	02:37:30 AM
118	MB-63442	MBLK	1	08/29/2017	02:42:22 AM
7	CCV6	CCV	1	08/29/2017	02:46:44 AM
1	CCB6	CCB	1	08/29/2017	02:51:04 AM
119	LCS-63442	LCS	1	08/29/2017	02:55:22 AM
120	N025503-001B	SAMP	1	08/29/2017	03:00:13 AM
121	N025503-001B	SAMP	5	08/29/2017	03:04:35 AM
122	N025503-001B-PS	PS	1	08/29/2017	03:09:26 AM
123	N025503-001B-MS	MS	1	08/29/2017	03:14:19 AM
124	N025503-001B-MSD	MSD	1	08/29/2017	03:18:42 AM
125	N025503-003B	SAMP	1	08/29/2017	03:23:35 AM
126	N025503-004B	SAMP	1	08/29/2017	03:28:27 AM
127	N025503-005B	SAMP	1	08/29/2017	03:33:48 AM
128	N025503-006B	SAMP	1	08/29/2017	03:39:09 AM
7	CCV7	CCV	1	08/29/2017	03:43:29 AM
1	CCB7	CCB	1	08/29/2017	03:47:49 AM
129	N025503-007B	SAMP	1	08/29/2017	03:52:07 AM
130	N025503-008B	SAMP	1	08/29/2017	03:57:47 AM
131	N025503-009B	SAMP	1	08/29/2017	04:02:08 AM
132	N025503-010B	SAMP	1	08/29/2017	04:06:29 AM
133	N025503-011B	SAMP	1	08/29/2017	04:11:50 AM
134	N025503-012B	SAMP	1	08/29/2017	04:17:10 AM
135	N025503-013B	SAMP	1	08/29/2017	04:21:31 AM
136	N025503-014B	SAMP	1	08/29/2017	04:26:23 AM
137	N025503-015B	SAMP	1	08/29/2017	04:31:44 AM
7	CCV8	CCV	1	08/29/2017	04:36:05 AM
1	CCB8	CCB	1	08/29/2017	04:40:54 AM
2	LLCCV2	CCV2	1	08/29/2017	04:45:12 AM
4	ICSA3	ICSA	1	08/29/2017	04:49:30 AM
5	ICSAB3	ICSAB	1	08/29/2017	04:55:26 AM
126	N025503-004B	SAMP	1	08/29/2017	07:49:44 AM
127	N025503-005B	SAMP	1	08/29/2017	07:54:06 AM
128	N025503-006B	SAMP	1	08/29/2017	07:58:58 AM
129	N025503-007B	SAMP	1	08/29/2017	08:03:48 AM
130	N025503-008B	SAMP	1	08/29/2017	08:08:40 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
131	N025503-009B	SAMP	1	08/29/2017	08:13:03 AM
132	N025503-010B	SAMP	1	08/29/2017	08:17:56 AM
133	N025503-011B	SAMP	1	08/29/2017	08:22:18 AM
134	N025503-012B	SAMP	1	08/29/2017	08:27:12 AM
136	N025503-014B	SAMP	1	08/29/2017	08:31:33 AM
7	CCV9	CCV	1	08/29/2017	08:35:55 AM
1	CCB9	CCB	1	08/29/2017	08:40:44 AM
137	N025503-015B	SAMP	1	08/29/2017	08:45:00 AM
40	N025493-001C	SAMP	1	08/29/2017	08:49:22 AM
41	N025493-001C	SAMP	5	08/29/2017	08:53:43 AM
45	N025493-002C	SAMP	1	08/29/2017	08:58:32 AM
64	N025493-002B	SAMP	1	08/29/2017	09:03:23 AM
50	N025493-007C	SAMP	1	08/29/2017	09:07:43 AM
69	N025493-007B	SAMP	1	08/29/2017	09:12:04 AM
99	LCS-63441	LCS	1	08/29/2017	09:16:24 AM
100	N025503-001C	SAMP	1	08/29/2017	09:21:14 AM
101	N025503-001C	SAMP	5	08/29/2017	09:25:36 AM
7	CCV10	CCV	1	08/29/2017	09:30:27 AM
7	CCV10	CCV	1	08/29/2017	09:40:30 AM
1	CCB10	CCB	1	08/29/2017	09:45:49 AM
102	N025503-001C-PS	PS	1	08/29/2017	09:50:28 AM
103	N025503-001C-MS	MS	1	08/29/2017	09:54:50 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	09:59:12 AM
7	CCV11	CCV	1	08/29/2017	10:03:34 AM
1	CCB11	CCB	1	08/29/2017	10:07:54 AM
2	LLCCV3	CCV2	1	08/29/2017	10:12:12 AM
4	ICSA4	ICSA	1	08/29/2017	10:16:31 AM
5	ICSAB4	ICSAB	1	08/29/2017	10:22:27 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**
Prep Batch **63440** Prep Code: **3010_W_DISS**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63440	Aqueous		25	☐	0	0	25	1.000		
MB-63440	Aqueous		25	☐	0	0	25	1.000		
N025493-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-012B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**

Reviewed/ Date: 8/31/2017

Initials/ Date: 8/31/2017

Prep Batch **63440** Prep Code: **3010_W_DISS** Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025493-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-017B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170828C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	08/28/2017	07:40:35 PM	Fe	273.953	9	0.00	mg/L	
Standard1	08/28/2017	07:44:53 PM	Fe	273.953	342	0.0200	mg/L	
Standard2	08/28/2017	07:49:10 PM	Fe	273.953	898	0.050	mg/L	
Standard3	08/28/2017	07:53:59 PM	Fe	273.953	28576	2.000	mg/L	
Standard4	08/28/2017	07:58:49 PM	Fe	273.953	72598	5.000	mg/L	
Standard5	08/28/2017	08:03:40 PM	Fe	273.953	109250	7.500	mg/L	
Standard6	08/28/2017	08:08:28 PM	Fe	273.953	144978	10.000	mg/L	
Standard7	08/28/2017	08:12:47 PM	Fe	273.953	283932	20.000	mg/L	0.9999

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9899.956	20	10000	0	99.0	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	23.660	20	20.00	0	118	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10138.018	20	10000	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10901.811	20	10000	0	109	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749359**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10128.764	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10154.691	20	10000	0	102	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.204	20	20.00	0	126	70	130				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10131.519	20	10000	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10122.257	20	10000	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749410**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10108.606	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10591.941	20	10000	0	106	90	110				

Sample ID **LLCCV2**	SampType: **CCV2**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.087	20	20.00	0	125	70	130				

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10474.141	20	10000	0	105	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10092.325	20	10000	0	101	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10055.905	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **LLCCV3**	SampType: **CCV2**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.675	20	20.00	0	128	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.984	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.856	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.104	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.004	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	CCB5	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749387

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.699	20									

Sample ID	CCB6	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749399

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.774	20									

Sample ID	CCB7	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749411

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.186	20									

Sample ID	CCB8	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749422

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.813	20									

Sample ID	CCB9	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749437

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.624	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.193	20									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.131	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSA**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465766.671	50	500000	0	93.2	80	120				
Calcium	494633.092	500	500000	0	98.9	80	120				
Iron	184498.387	20	200000	0	92.2	80	120				
Magnesium	526449.321	100	500000	0	105	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSAB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533097.646	50	500000	0	107	80	120				
Calcium	575379.393	500	500000	0	115	80	120				
Iron	202270.742	20	200000	0	101	80	120				
Magnesium	543253.109	100	500000	0	109	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSA**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	466818.378	50	500000	0	93.4	80	120				
Calcium	499958.936	500	500000	0	100	80	120				
Iron	185172.108	20	200000	0	92.6	80	120				
Magnesium	535246.797	100	500000	0	107	80	120				

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSAB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533860.429	50	500000	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSAB** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	573744.357	500	500000	0	115	80	120				
Iron	202758.631	20	200000	0	101	80	120				
Magnesium	549586.986	100	500000	0	110	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSA** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465186.783	50	500000	0	93.0	80	120				
Calcium	495491.808	500	500000	0	99.1	80	120				
Iron	184433.430	20	200000	0	92.2	80	120				
Magnesium	531400.271	100	500000	0	106	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSAB** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532075.492	50	500000	0	106	80	120				
Calcium	572003.679	500	500000	0	114	80	120				
Iron	201902.135	20	200000	0	101	80	120				
Magnesium	547348.927	100	500000	0	109	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSA** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	462000.971	50	500000	0	92.4	80	120				
Calcium	489292.029	500	500000	0	97.9	80	120				
Iron	181735.644	20	200000	0	90.9	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSA**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	500001.294	100	500000	0	100	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSAB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	528646.042	50	500000	0	106	80	120				
Calcium	565699.973	500	500000	0	113	80	120				
Iron	199003.524	20	200000	0	99.5	80	120				
Magnesium	515829.827	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0039	100.39	65-125	PASS
Standard2	ICAL	1	1.018	101.79	65-125	PASS
Standard3	ICAL	1	1	99.9	65-125	PASS
Standard4	ICAL	1	0.99	99.32	65-125	PASS
Standard5	ICAL	1	0.98	98.068	65-125	PASS
Standard6	ICAL	1	0.98	97.95	65-125	PASS
Standard7	ICAL	1	0.96	95.97	65-125	PASS
ICV	ICV	1	0.97	97.14	65-125	PASS
ICB	ICB	1	1	99.82	65-125	PASS
LLICV	CCV1	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.86	65-125	PASS
ICSA1	ICSA	1	1.13	113.38	65-125	PASS
ICSAB1	ICSAB	1	1.046	104.56	65-125	PASS
CCV1	CCV	1	0.97	97.11	65-125	PASS
CCB1	CCB	1	1.0005	100.05	65-125	PASS
CCV2	CCV	1	0.96	96.39	65-125	PASS
CCB2	CCB	1	1.0076	100.76	65-125	PASS
MB-63440	MBLK	1	1.0045	100.45	65-125	PASS
LCS-63440	LCS	1	0.93	92.56	65-125	PASS
N025493-001B	SAMP	1	1.012	101.18	65-125	PASS
N025493-001B	SAMP	5	0.99	98.94	65-125	PASS
N025493-001B-PS	PS	1	1.001	100.1	65-125	PASS
N025493-001B-MS	MS	1	0.99	99.092	65-125	PASS
N025493-001B-MSD	MSD	1	1.002	100.2	65-125	PASS
N025493-002B	SAMP	1	1.05	105.02	65-125	PASS
N025493-003B	SAMP	1	1.046	104.59	65-125	PASS
N025493-004B	SAMP	1	1.0053	100.53	65-125	PASS
CCV3	CCV	1	0.99	98.53	65-125	PASS
CCB3	CCB	1	0.98	98.5	65-125	PASS
N025493-005B	SAMP	1	1.026	102.56	65-125	PASS
N025493-006B	SAMP	1	1.033	103.3	65-125	PASS
N025493-007B	SAMP	1	1.018	101.83	65-125	PASS
N025493-008B	SAMP	1	1.052	105.16	65-125	PASS
N025493-011B	SAMP	1	1.068	106.79	65-125	PASS
N025493-012B	SAMP	1	1.044	104.42	65-125	PASS
N025493-013B	SAMP	1	1.018	101.76	65-125	PASS
N025493-014B	SAMP	1	1.074	107.39	65-125	PASS
N025493-017B	SAMP	1	1.036	103.55	65-125	PASS
CCV4	CCV	1	0.99	98.53	65-125	PASS
CCB4	CCB	1	1.01	101.02	65-125	PASS

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
LLCCV1	CCV2	1	1.013	101.27	65-125	PASS
ICSA2	ICSA	1	1.15	115.21	65-125	PASS
ICSAB2	ICSAB	1	1.068	106.84	65-125	PASS
CCV5	CCV	1	1.0002	100.02	65-125	PASS
CCB5	CCB	1	1.023	102.33	65-125	PASS
CCV6	CCV	1	0.98	98.27	65-125	PASS
CCB6	CCB	1	1.0046	100.46	65-125	PASS
CCV7	CCV	1	0.98	97.63	65-125	PASS
CCB7	CCB	1	0.98	97.81	65-125	PASS
CCV8	CCV	1	0.97	97.028	65-125	PASS
CCB8	CCB	1	1	99.6	65-125	PASS
LLCCV2	CCV2	1	0.99	99.19	65-125	PASS
ICSA3	ICSA	1	1.13	112.93	65-125	PASS
ICSAB3	ICSAB	1	1.038	103.82	65-125	PASS
CCV9	CCV	1	0.99	98.74	65-125	PASS
CCB9	CCB	1	1.011	101.08	65-125	PASS
N025493-002B	SAMP	1	1.048	104.77	65-125	PASS
N025493-007B	SAMP	1	1.06	106.03	65-125	PASS
CCV10	CCV	1	0.46	45.72	65-125	NR!
CCV10	CCV	1	0.99	99.17	65-125	PASS
CCB10	CCB	1	1.015	101.54	65-125	PASS
CCV11	CCV	1	1.015	101.46	65-125	PASS
CCB11	CCB	1	1.035	103.48	65-125	PASS
LLCCV3	CCV2	1	1.026	102.58	65-125	PASS
ICSA4	ICSA	1	1.19	119.24	65-125	PASS
ICSAB4	ICSAB	1	1.1	110.43	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025493
Test Method: EPA 6010B
Analysis Date: 8/28/2017

Matrix: Groundwater
Batch No.: 63440

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025493-001B DT 5X	Iron	ug/L	13.41998	NA	17.36195	22.70%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N025493-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID:	**ZZZZZZ**	Batch ID: **63440**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	108.668	20	100.0	17.36	91.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

EPA 6010B

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63439
ASSET #: N025493

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/28/2017

Method:

[X] EPA 6010B / 200.7 TOTAL
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 8/31/2017 Date: –

2nd Level Reviewer 8/31/2017 Date: '

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N025493-001C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.02811 * 1 * (25/25) * 1000

Iron , ug/L = 28.11

Reporting results in two significant figures,

Iron , ug/L = 28

% RSD SUMMARY

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment	
CalBlk	IBLK	1	Fe	0	74.019	15	<PQL	
Standard1	ICAL	1	Fe	0.02	0.45	15	PASS	
Standard2	ICAL	1	Fe	0.05	1.48	15	PASS	
Standard3	ICAL	1	Fe	2	0.15	15	PASS	
Standard4	ICAL	1	Fe	5	0.66	15	PASS	
Standard5	ICAL	1	Fe	7.5	0.29	15	PASS	
Standard6	ICAL	1	Fe	10	0.11	15	PASS	
Standard7	ICAL	1	Fe	20	0.037	15	PASS	
ICV	ICV	1	Fe	9.9	0.14	15	PASS	
ICB	ICB	1	Fe	0.004	36.85	15	<PQL	
LLICV	CCV1	1	Fe	0.024	1.93	20	PASS	
LLICV	CCV1	1	Fe	0.024	3.52	20	PASS	
ICSA1	ICSA	1	Fe	184.5	0.21	15	PASS	
ICSAB1	ICSAB	1	Fe	202.27	0.1	15	PASS	
MB-63439	MBLK	1	Fe	0.032	18.043	15	NR!	
LCS-63439	LCS	1	Fe	0.11	0.74	15	PASS	
N025493-001C	SAMP	1	Fe	0.24	0.82	15	PASS	NR
N025493-001C	SAMP	5	Fe	0.051	2.58	15	PASS	NR
N025493-001C-PS	PS	1	Fe	0.14	0.61	15	PASS	
N025493-001C-MS	MS	1	Fe	0.14	0.97	15	PASS	
N025493-001C-MSD	MSD	1	Fe	0.14	1.28	15	PASS	
N025493-002C	SAMP	1	Fe	0.043	2.4	15	PASS	NR
N025493-003C	SAMP	1	Fe	0.047	1.76	15	PASS	
N025493-004C	SAMP	1	Fe	0.045	2.09	15	PASS	
CCV1	CCV	1	Fe	10.14	0.14	15	PASS	
CCB1	CCB	1	Fe	0.004	42.75	15	<PQL	
N025493-005C	SAMP	1	Fe	0.021	3.47	15	PASS	
N025493-006C	SAMP	1	Fe	0.11	0.95	15	PASS	
N025493-007C	SAMP	1	Fe	0.045	0.97	15	PASS	NR
N025493-008C	SAMP	1	Fe	0.1	1.2	15	PASS	
N025493-011C	SAMP	1	Fe	0.062	0.7	15	PASS	
N025493-012C	SAMP	1	Fe	0.089	0.52	15	PASS	
N025493-013C	SAMP	1	Fe	0.12	0.74	15	PASS	
N025493-014C	SAMP	1	Fe	0.028	0.89	15	PASS	
N025493-017C	SAMP	1	Fe	0.093	2.27	15	PASS	
MB-63439	MBLK	1	Fe	0.0019	54.27	15	<PQL	
CCV2	CCV	1	Fe	10.9	0.56	15	PASS	
CCB2	CCB	1	Fe	0.0039	50.91	15	<PQL	
CCV3	CCV	1	Fe	10.13	0.13	15	PASS	
CCB3	CCB	1	Fe	0.0051	23.17	15	<PQL	
CCV4	CCV	1	Fe	10.15	0.04	15	PASS	
CCB4	CCB	1	Fe	0.005	36.38	15	<PQL	

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
LLCCV1	CCV2	1	Fe	0.025	2.47	20	PASS
ICSA2	ICSA	1	Fe	185.17	0.042	15	PASS
ICSAB2	ICSAB	1	Fe	202.76	0.22	15	PASS
CCV5	CCV	1	Fe	10.13	0.032	15	PASS
CCB5	CCB	1	Fe	0.0057	50.87	15	<PQL
CCV6	CCV	1	Fe	10.12	0.16	15	PASS
CCB6	CCB	1	Fe	0.0058	39.42	15	<PQL
CCV7	CCV	1	Fe	10.11	0.03	15	PASS
CCB7	CCB	1	Fe	0.0062	35.85	15	<PQL
CCV8	CCV	1	Fe	10.59	0.48	15	PASS
CCB8	CCB	1	Fe	0.0068	19.11	15	<PQL
LLCCV2	CCV2	1	Fe	0.025	4.075	20	PASS
ICSA3	ICSA	1	Fe	184.43	0.032	15	PASS
ICSAB3	ICSAB	1	Fe	201.9	0.057	15	PASS
CCV9	CCV	1	Fe	10.47	0.62	15	PASS
CCB9	CCB	1	Fe	0.0036	23.47	15	<PQL
N025493-001C	SAMP	1	Fe	0.028	2.95	15	PASS
N025493-001C	SAMP	5	Fe	0.0054	16.53	15	<PQL
N025493-002C	SAMP	1	Fe	0.024	2.37	15	PASS
N025493-007C	SAMP	1	Fe	0.02	3.37	15	PASS
CCV10	CCV	1	Fe	8.68	27.48	15	NR!
CCV10	CCV	1	Fe	10.092	0.16	15	PASS
CCB10	CCB	1	Fe	0.0032	45.78	15	<PQL
CCV11	CCV	1	Fe	10.056	0.018	15	PASS
CCB11	CCB	1	Fe	0.0031	41.56	15	<PQL
LLCCV3	CCV2	1	Fe	0.026	1.79	20	PASS
ICSA4	ICSA	1	Fe	181.74	0.046	15	PASS
ICSAB4	ICSAB	1	Fe	199	0.094	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170828C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/28/2017	07:40:35 PM
2	Standard1	ICAL	1	08/28/2017	07:44:53 PM
3	Standard2	ICAL	1	08/28/2017	07:49:10 PM
11	Standard3	ICAL	1	08/28/2017	07:53:59 PM
12	Standard4	ICAL	1	08/28/2017	07:58:49 PM
6	Standard5	ICAL	1	08/28/2017	08:03:40 PM
7	Standard6	ICAL	1	08/28/2017	08:08:28 PM
8	Standard7	ICAL	1	08/28/2017	08:12:47 PM
9	ICV	ICV	1	08/28/2017	08:18:09 PM
1	ICB	ICB	1	08/28/2017	08:22:31 PM
2	LLICV	CCV1	1	08/28/2017	08:41:30 PM
2	LLICV	CCV1	1	08/28/2017	08:59:32 PM
4	ICSA1	ICSA	1	08/28/2017	09:03:50 PM
5	ICSAB1	ICSAB	1	08/28/2017	09:09:47 PM
38	MB-63439	MBLK	1	08/28/2017	09:15:45 PM
39	LCS-63439	LCS	1	08/28/2017	09:20:04 PM
40	N025493-001C	SAMP	1	08/28/2017	09:24:53 PM
41	N025493-001C	SAMP	5	08/28/2017	09:29:12 PM
42	N025493-001C-PS	PS	1	08/28/2017	09:34:01 PM
43	N025493-001C-MS	MS	1	08/28/2017	09:38:22 PM
44	N025493-001C-MSD	MSD	1	08/28/2017	09:42:43 PM
45	N025493-002C	SAMP	1	08/28/2017	09:47:04 PM
46	N025493-003C	SAMP	1	08/28/2017	09:51:23 PM
47	N025493-004C	SAMP	1	08/28/2017	09:56:12 PM
7	CCV1	CCV	1	08/28/2017	10:00:33 PM
1	CCB1	CCB	1	08/28/2017	10:04:53 PM
48	N025493-005C	SAMP	1	08/28/2017	10:09:11 PM
49	N025493-006C	SAMP	1	08/28/2017	10:13:31 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
50	N025493-007C	SAMP	1	08/28/2017	10:17:52 PM
51	N025493-008C	SAMP	1	08/28/2017	10:22:13 PM
52	N025493-011C	SAMP	1	08/28/2017	10:26:33 PM
53	N025493-012C	SAMP	1	08/28/2017	10:30:54 PM
54	N025493-013C	SAMP	1	08/28/2017	10:35:13 PM
55	N025493-014C	SAMP	1	08/28/2017	10:39:33 PM
56	N025493-017C	SAMP	1	08/28/2017	10:43:52 PM
38	MB-63439	MBLK	1	08/28/2017	10:48:45 PM
7	CCV2	CCV	1	08/28/2017	10:53:04 PM
1	CCB2	CCB	1	08/28/2017	10:58:54 PM
57	MB-63440	MBLK	1	08/28/2017	11:03:10 PM
58	LCS-63440	LCS	1	08/28/2017	11:07:28 PM
59	N025493-001B	SAMP	1	08/28/2017	11:12:17 PM
60	N025493-001B	SAMP	5	08/28/2017	11:16:37 PM
61	N025493-001B-PS	PS	1	08/28/2017	11:21:26 PM
62	N025493-001B-MS	MS	1	08/28/2017	11:26:17 PM
63	N025493-001B-MSD	MSD	1	08/28/2017	11:31:06 PM
64	N025493-002B	SAMP	1	08/28/2017	11:35:26 PM
65	N025493-003B	SAMP	1	08/28/2017	11:39:46 PM
66	N025493-004B	SAMP	1	08/28/2017	11:44:05 PM
7	CCV3	CCV	1	08/28/2017	11:48:24 PM
1	CCB3	CCB	1	08/28/2017	11:52:43 PM
67	N025493-005B	SAMP	1	08/28/2017	11:57:01 PM
68	N025493-006B	SAMP	1	08/29/2017	12:01:19 AM
69	N025493-007B	SAMP	1	08/29/2017	12:05:39 AM
70	N025493-008B	SAMP	1	08/29/2017	12:10:29 AM
71	N025493-011B	SAMP	1	08/29/2017	12:15:20 AM
72	N025493-012B	SAMP	1	08/29/2017	12:19:40 AM
73	N025493-013B	SAMP	1	08/29/2017	12:24:00 AM
74	N025493-014B	SAMP	1	08/29/2017	12:28:52 AM
75	N025493-017B	SAMP	1	08/29/2017	12:33:12 AM
98	MB-63441	MBLK	1	08/29/2017	12:37:32 AM
7	CCV4	CCV	1	08/29/2017	12:41:52 AM
1	CCB4	CCB	1	08/29/2017	12:46:12 AM
2	LLCCV1	CCV2	1	08/29/2017	12:50:28 AM
4	ICSA2	ICSA	1	08/29/2017	12:54:46 AM
5	ICSAB2	ICSAB	1	08/29/2017	01:00:41 AM
99	LCS-63441	LCS	1	08/29/2017	01:06:39 AM
100	N025503-001C	SAMP	1	08/29/2017	01:11:30 AM
101	N025503-001C	SAMP	5	08/29/2017	01:15:52 AM
102	N025503-001C-PS	PS	1	08/29/2017	01:20:43 AM
103	N025503-001C-MS	MS	1	08/29/2017	01:25:05 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	01:29:27 AM
105	N025503-003C	SAMP	1	08/29/2017	01:33:49 AM
106	N025503-004C	SAMP	1	08/29/2017	01:38:53 AM
107	N025503-005C	SAMP	1	08/29/2017	01:43:14 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
108	N025503-006C	SAMP	1	08/29/2017	01:48:06 AM
7	CCV5	CCV	1	08/29/2017	01:52:27 AM
1	CCB5	CCB	1	08/29/2017	01:56:47 AM
109	N025503-007C	SAMP	1	08/29/2017	02:01:05 AM
110	N025503-008C	SAMP	1	08/29/2017	02:05:26 AM
111	N025503-009C	SAMP	1	08/29/2017	02:10:17 AM
112	N025503-010C	SAMP	1	08/29/2017	02:14:39 AM
113	N025503-011C	SAMP	1	08/29/2017	02:19:33 AM
114	N025503-012C	SAMP	1	08/29/2017	02:23:55 AM
115	N025503-013C	SAMP	1	08/29/2017	02:28:17 AM
116	N025503-014C	SAMP	1	08/29/2017	02:33:08 AM
117	N025503-015C	SAMP	1	08/29/2017	02:37:30 AM
118	MB-63442	MBLK	1	08/29/2017	02:42:22 AM
7	CCV6	CCV	1	08/29/2017	02:46:44 AM
1	CCB6	CCB	1	08/29/2017	02:51:04 AM
119	LCS-63442	LCS	1	08/29/2017	02:55:22 AM
120	N025503-001B	SAMP	1	08/29/2017	03:00:13 AM
121	N025503-001B	SAMP	5	08/29/2017	03:04:35 AM
122	N025503-001B-PS	PS	1	08/29/2017	03:09:26 AM
123	N025503-001B-MS	MS	1	08/29/2017	03:14:19 AM
124	N025503-001B-MSD	MSD	1	08/29/2017	03:18:42 AM
125	N025503-003B	SAMP	1	08/29/2017	03:23:35 AM
126	N025503-004B	SAMP	1	08/29/2017	03:28:27 AM
127	N025503-005B	SAMP	1	08/29/2017	03:33:48 AM
128	N025503-006B	SAMP	1	08/29/2017	03:39:09 AM
7	CCV7	CCV	1	08/29/2017	03:43:29 AM
1	CCB7	CCB	1	08/29/2017	03:47:49 AM
129	N025503-007B	SAMP	1	08/29/2017	03:52:07 AM
130	N025503-008B	SAMP	1	08/29/2017	03:57:47 AM
131	N025503-009B	SAMP	1	08/29/2017	04:02:08 AM
132	N025503-010B	SAMP	1	08/29/2017	04:06:29 AM
133	N025503-011B	SAMP	1	08/29/2017	04:11:50 AM
134	N025503-012B	SAMP	1	08/29/2017	04:17:10 AM
135	N025503-013B	SAMP	1	08/29/2017	04:21:31 AM
136	N025503-014B	SAMP	1	08/29/2017	04:26:23 AM
137	N025503-015B	SAMP	1	08/29/2017	04:31:44 AM
7	CCV8	CCV	1	08/29/2017	04:36:05 AM
1	CCB8	CCB	1	08/29/2017	04:40:54 AM
2	LLCCV2	CCV2	1	08/29/2017	04:45:12 AM
4	ICSA3	ICSA	1	08/29/2017	04:49:30 AM
5	ICSAB3	ICSAB	1	08/29/2017	04:55:26 AM
126	N025503-004B	SAMP	1	08/29/2017	07:49:44 AM
127	N025503-005B	SAMP	1	08/29/2017	07:54:06 AM
128	N025503-006B	SAMP	1	08/29/2017	07:58:58 AM
129	N025503-007B	SAMP	1	08/29/2017	08:03:48 AM
130	N025503-008B	SAMP	1	08/29/2017	08:08:40 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
131	N025503-009B	SAMP	1	08/29/2017	08:13:03 AM
132	N025503-010B	SAMP	1	08/29/2017	08:17:56 AM
133	N025503-011B	SAMP	1	08/29/2017	08:22:18 AM
134	N025503-012B	SAMP	1	08/29/2017	08:27:12 AM
136	N025503-014B	SAMP	1	08/29/2017	08:31:33 AM
7	CCV9	CCV	1	08/29/2017	08:35:55 AM
1	CCB9	CCB	1	08/29/2017	08:40:44 AM
137	N025503-015B	SAMP	1	08/29/2017	08:45:00 AM
40	N025493-001C	SAMP	1	08/29/2017	08:49:22 AM
41	N025493-001C	SAMP	5	08/29/2017	08:53:43 AM
45	N025493-002C	SAMP	1	08/29/2017	08:58:32 AM
64	N025493-002B	SAMP	1	08/29/2017	09:03:23 AM
50	N025493-007C	SAMP	1	08/29/2017	09:07:43 AM
69	N025493-007B	SAMP	1	08/29/2017	09:12:04 AM
99	LCS-63441	LCS	1	08/29/2017	09:16:24 AM
100	N025503-001C	SAMP	1	08/29/2017	09:21:14 AM
101	N025503-001C	SAMP	5	08/29/2017	09:25:36 AM
7	CCV10	CCV	1	08/29/2017	09:30:27 AM
7	CCV10	CCV	1	08/29/2017	09:40:30 AM
1	CCB10	CCB	1	08/29/2017	09:45:49 AM
102	N025503-001C-PS	PS	1	08/29/2017	09:50:28 AM
103	N025503-001C-MS	MS	1	08/29/2017	09:54:50 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	09:59:12 AM
7	CCV11	CCV	1	08/29/2017	10:03:34 AM
1	CCB11	CCB	1	08/29/2017	10:07:54 AM
2	LLCCV3	CCV2	1	08/29/2017	10:12:12 AM
4	ICSA4	ICSA	1	08/29/2017	10:16:31 AM
5	ICSAB4	ICSAB	1	08/29/2017	10:22:27 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**
Prep Batch **63439** Prep Code: **3010_W**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63439	Aqueous		25	☐	0	0	25	1.000		
MB-63439	Aqueous		25	☐	0	0	25	1.000		
N025493-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-002C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-003C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-004C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-005C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-006C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-007C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-008C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-011C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-012C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017

Prep Batch **63439** Prep Code: **3010_W** Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025493-013C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-014C	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-017C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170828C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	08/28/2017	07:40:35 PM	Fe	273.953	9	0.00	mg/L	
Standard1	08/28/2017	07:44:53 PM	Fe	273.953	342	0.0200	mg/L	
Standard2	08/28/2017	07:49:10 PM	Fe	273.953	898	0.050	mg/L	
Standard3	08/28/2017	07:53:59 PM	Fe	273.953	28576	2.000	mg/L	
Standard4	08/28/2017	07:58:49 PM	Fe	273.953	72598	5.000	mg/L	
Standard5	08/28/2017	08:03:40 PM	Fe	273.953	109250	7.500	mg/L	
Standard6	08/28/2017	08:08:28 PM	Fe	273.953	144978	10.000	mg/L	
Standard7	08/28/2017	08:12:47 PM	Fe	273.953	283932	20.000	mg/L	0.9999

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9899.956	20	10000	0	99.0	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ZZZZZZ**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	23.660	20	20.00	0	118	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10138.018	20	10000	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10901.811	20	10000	0	109	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10128.764	20	10000	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	**CCV4**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**117505**
Client ID:	**CCV**	Batch ID:	**R117505**	TestNo:	**EPA 6010B**			Analysis Date:	**8/29/2017**	SeqNo:	**2749517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10154.691	20	10000	0	102	90	110				

Sample ID	**LLCCV1**	SampType:	**CCV2**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**117505**
Client ID:	**ZZZZZZ**	Batch ID:	**R117505**	TestNo:	**EPA 6010B**			Analysis Date:	**8/29/2017**	SeqNo:	**2749519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.204	20	20.00	0	126	70	130				

Sample ID	**CCV5**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**117505**
Client ID:	**CCV**	Batch ID:	**R117505**	TestNo:	**EPA 6010B**			Analysis Date:	**8/29/2017**	SeqNo:	**2749532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10131.519	20	10000	0	101	90	110				

Sample ID	**CCV6**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**117505**
Client ID:	**CCV**	Batch ID:	**R117505**	TestNo:	**EPA 6010B**			Analysis Date:	**8/29/2017**	SeqNo:	**2749544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10122.257	20	10000	0	101	90	110				

Sample ID	**CCV7**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**117505**
Client ID:	**CCV**	Batch ID:	**R117505**	TestNo:	**EPA 6010B**			Analysis Date:	**8/29/2017**	SeqNo:	**2749556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10108.606	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10591.941	20	10000	0	106	90	110				

Sample ID **LLCCV2**	SampType: **CCV2**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ZZZZZZ**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.087	20	20.00	0	125	70	130				

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10474.141	20	10000	0	105	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10092.325	20	10000	0	101	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10055.905	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	**LLCCV3**	SampType:	**CCV2**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**117505**
Client ID:	**ZZZZZZ**	Batch ID:	**R117505**	TestNo:	**EPA 6010B**			Analysis Date:	**8/29/2017**	SeqNo:	**2749602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.675	20	20.00	0	128	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.984	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749494**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.856	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.104	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.004	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	CCB5	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.699	20									

Sample ID	CCB6	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749545

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.774	20									

Sample ID	CCB7	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.186	20									

Sample ID	CCB8	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749568

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.813	20									

Sample ID	CCB9	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749583

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.624	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.193	20									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.131	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSA**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465766.671	50	500000	0	93.2	80	120				
Calcium	494633.092	500	500000	0	98.9	80	120				
Iron	184498.387	20	200000	0	92.2	80	120				
Magnesium	526449.321	100	500000	0	105	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSAB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533097.646	50	500000	0	107	80	120				
Calcium	575379.393	500	500000	0	115	80	120				
Iron	202270.742	20	200000	0	101	80	120				
Magnesium	543253.109	100	500000	0	109	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSA**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	466818.378	50	500000	0	93.4	80	120				
Calcium	499958.936	500	500000	0	100	80	120				
Iron	185172.108	20	200000	0	92.6	80	120				
Magnesium	535246.797	100	500000	0	107	80	120				

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSAB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533860.429	50	500000	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSAB** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	573744.357	500	500000	0	115	80	120				
Iron	202758.631	20	200000	0	101	80	120				
Magnesium	549586.986	100	500000	0	110	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSA** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465186.783	50	500000	0	93.0	80	120				
Calcium	495491.808	500	500000	0	99.1	80	120				
Iron	184433.430	20	200000	0	92.2	80	120				
Magnesium	531400.271	100	500000	0	106	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSAB** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532075.492	50	500000	0	106	80	120				
Calcium	572003.679	500	500000	0	114	80	120				
Iron	201902.135	20	200000	0	101	80	120				
Magnesium	547348.927	100	500000	0	109	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSA** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	462000.971	50	500000	0	92.4	80	120				
Calcium	489292.029	500	500000	0	97.9	80	120				
Iron	181735.644	20	200000	0	90.9	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSA**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	500001.294	100	500000	0	100	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSAB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	528646.042	50	500000	0	106	80	120				
Calcium	565699.973	500	500000	0	113	80	120				
Iron	199003.524	20	200000	0	99.5	80	120				
Magnesium	515829.827	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L				
			Reported Conc	%REC	Criteria	Comment	
CalBlk	IBLK	1	1	100	65-125	PASS	
Standard1	ICAL	1	1.0039	100.39	65-125	PASS	
Standard2	ICAL	1	1.018	101.79	65-125	PASS	
Standard3	ICAL	1	1	99.9	65-125	PASS	
Standard4	ICAL	1	0.99	99.32	65-125	PASS	
Standard5	ICAL	1	0.98	98.068	65-125	PASS	
Standard6	ICAL	1	0.98	97.95	65-125	PASS	
Standard7	ICAL	1	0.96	95.97	65-125	PASS	
ICV	ICV	1	0.97	97.14	65-125	PASS	
ICB	ICB	1	1	99.82	65-125	PASS	
LLICV	CCV1	1	1	99.95	65-125	PASS	
LLICV	CCV1	1	1	99.86	65-125	PASS	
ICSA1	ICSA	1	1.13	113.38	65-125	PASS	
ICSAB1	ICSAB	1	1.046	104.56	65-125	PASS	
MB-63439	MBLK	1	0.99	99.38	65-125	PASS	
LCS-63439	LCS	1	0.91	91.21	65-125	PASS	
N025493-001C	SAMP	1	1.02	102.01	65-125	PASS	NR
N025493-001C	SAMP	5	0.99	99.38	65-125	PASS	NR
N025493-001C-PS	PS	1	1.0087	100.87	65-125	PASS	
N025493-001C-MS	MS	1	1.0048	100.48	65-125	PASS	
N025493-001C-MSD	MSD	1	1.0097	100.97	65-125	PASS	
N025493-002C	SAMP	1	1.022	102.15	65-125	PASS	NR
N025493-003C	SAMP	1	1.0019	100.19	65-125	PASS	
N025493-004C	SAMP	1	1.032	103.23	65-125	PASS	
CCV1	CCV	1	0.97	97.11	65-125	PASS	
CCB1	CCB	1	1.0005	100.05	65-125	PASS	
N025493-005C	SAMP	1	1.02	102.03	65-125	PASS	
N025493-006C	SAMP	1	1.03	103.01	65-125	PASS	
N025493-007C	SAMP	1	1.0071	100.71	65-125	PASS	NR
N025493-008C	SAMP	1	1.032	103.2	65-125	PASS	
N025493-011C	SAMP	1	1.052	105.24	65-125	PASS	
N025493-012C	SAMP	1	1.042	104.15	65-125	PASS	
N025493-013C	SAMP	1	1.04	103.99	65-125	PASS	
N025493-014C	SAMP	1	1.039	103.87	65-125	PASS	
N025493-017C	SAMP	1	1.032	103.15	65-125	PASS	
MB-63439	MBLK	1	0.99	99.16	65-125	PASS	
CCV2	CCV	1	0.96	96.39	65-125	PASS	
CCB2	CCB	1	1.0076	100.76	65-125	PASS	
CCV3	CCV	1	0.99	98.53	65-125	PASS	
CCB3	CCB	1	0.98	98.5	65-125	PASS	
CCV4	CCV	1	0.99	98.53	65-125	PASS	

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCB4	CCB	1	1.01	101.02	65-125	PASS
LLCCV1	CCV2	1	1.013	101.27	65-125	PASS
ICSA2	ICSA	1	1.15	115.21	65-125	PASS
ICSAB2	ICSAB	1	1.068	106.84	65-125	PASS
CCV5	CCV	1	1.0002	100.02	65-125	PASS
CCB5	CCB	1	1.023	102.33	65-125	PASS
CCV6	CCV	1	0.98	98.27	65-125	PASS
CCB6	CCB	1	1.0046	100.46	65-125	PASS
CCV7	CCV	1	0.98	97.63	65-125	PASS
CCB7	CCB	1	0.98	97.81	65-125	PASS
CCV8	CCV	1	0.97	97.028	65-125	PASS
CCB8	CCB	1	1	99.6	65-125	PASS
LLCCV2	CCV2	1	0.99	99.19	65-125	PASS
ICSA3	ICSA	1	1.13	112.93	65-125	PASS
ICSAB3	ICSAB	1	1.038	103.82	65-125	PASS
CCV9	CCV	1	0.99	98.74	65-125	PASS
CCB9	CCB	1	1.011	101.08	65-125	PASS
N025493-001C	SAMP	1	1.041	104.08	65-125	PASS
N025493-001C	SAMP	5	1.012	101.18	65-125	PASS
N025493-002C	SAMP	1	1.032	103.23	65-125	PASS
N025493-007C	SAMP	1	1.04	104.02	65-125	PASS
CCV10	CCV	1	0.46	45.72	65-125	NR!
CCV10	CCV	1	0.99	99.17	65-125	PASS
CCB10	CCB	1	1.015	101.54	65-125	PASS
CCV11	CCV	1	1.015	101.46	65-125	PASS
CCB11	CCB	1	1.035	103.48	65-125	PASS
LLCCV3	CCV2	1	1.026	102.58	65-125	PASS
ICSA4	ICSA	1	1.19	119.24	65-125	PASS
ICSAB4	ICSAB	1	1.1	110.43	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025493
Test Method: EPA 6010B
Analysis Date: 8/28/2017

Matrix: Groundwater
Batch No.: 63439

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025493-001C DT 5X	Iron	ug/L	26.95844	NA	28.10838	4.09%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **N025493-001C-PS** SampType: **PS** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ZZZZZZ** Batch ID: **63439** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/28/2017** SeqNo: **2749475**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	144.469	20	100.0	28.11	116	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63426
ASSET #: N025493

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 8/28/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X					
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits		X				
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented		X				
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

~~%Rec of Ba in N025493-001B PS/MS/MSD failed. However, LCS passed criteria~~.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 8/30/2017 Date: _____

2nd Level Reviewer 8/30/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Arsenic concentration, in ug/L , in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N025493-001B** , the concentration in ug/L is calculated as follows:

Arsenic , ug/L = 2.15046 * 1 * (25/25)

Arsenic , ug/L = 2.15046

Reporting results in two significant figures,

Arsenic , ug/L = 2.2

% RSD SUMMARY

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	2.35	15	PASS	0.11	5.49	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.53	2.63	15	PASS	0.51	3.64	15	PASS
Std3-5/50 ppb	ICAL	1	5.17	1.51	15	PASS	5.09	1.72	15	PASS
Std4-10/100 ppb	ICAL	1	10.26	0.58	15	PASS	10.091	0.51	15	PASS
Std5-20/200 ppb	ICAL	1	20.45	0.22	15	PASS	19.97	1	15	PASS
Std6-40/400 ppb	ICAL	1	40.45	0.94	15	PASS	39.95	1.61	15	PASS
Std7-100/1000 ppb	ICAL	1	101.43	0.97	15	PASS	99.05	0.81	15	PASS
Std8-200/2000 ppb	ICAL	1	199.13	0.56	15	PASS	200.48	1.93	15	PASS
ICV	ICV	1	9.43	1.088	15	PASS	9.44	2.14	15	PASS
ICB	ICB	1	0.01	25.32	15	<PQL	0.0029	52.65	15	<PQL
LLICV	CCV1	1	1.13	0.35	20	PASS	1.019	3.022	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.14	8.2	15	PASS
ICSAB1	ICSAB	1	16.62	14.43	15	PASS	19.22	0.32	15	PASS
LLICV	CCV1	1	1.03	3.34	20	PASS	1.023	3.54	20	PASS
MB-63426	MBLK	1	0.07	7.4	15	PASS	<0.000	N/A	15	<PQL
LCS-63426	LCS	1	9.37	1.078	15	PASS	9.57	0.33	15	PASS
N025493-001B	SAMP	1	116.84	0.9	15	PASS	<0.000	N/A	15	<PQL
N025493-001B	SAMP	5	24.67	0.66	15	PASS	<0.000	N/A	15	<PQL
N025493-001B-PS	PS	1	126.67	0.3	15	PASS	8.9	0.14	15	PASS
N025493-001B-MS	MS	1	128.92	0.78	15	PASS	8.56	0.63	15	PASS
N025493-001B-MSD	MSD	1	128.36	0.41	15	PASS	8.67	0.26	15	PASS
N025493-002B	SAMP	1	111.029	0.69	15	PASS	0.009	33.21	15	<PQL
N025493-003B	SAMP	1	115.68	0.38	15	PASS	<0.000	N/A	15	<PQL
N025493-004B	SAMP	1	114.92	0.46	15	PASS	<0.000	N/A	15	<PQL
CCV1	CCV	1	20.3	0.57	15	PASS	19.92	0.82	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025493-005B	SAMP	1	114.22	0.83	15	PASS	<0.000	N/A	15	<PQL
N025493-006B	SAMP	1	113.81	1.41	15	PASS	<0.000	N/A	15	<PQL
N025493-007B	SAMP	1	109.61	0.91	15	PASS	<0.000	N/A	15	<PQL
N025493-008B	SAMP	1	108.87	0.83	15	PASS	<0.000	N/A	15	<PQL
N025493-009B	SAMP	1	94.93	0.16	15	PASS	<0.000	N/A	15	<PQL
N025493-010B	SAMP	1	107.5	2.21	15	PASS	<0.000	N/A	15	<PQL
N025493-011B	SAMP	1	111.84	1.53	15	PASS	<0.000	N/A	15	<PQL
N025493-012B	SAMP	1	106.44	1.21	15	PASS	<0.000	N/A	15	<PQL
N025493-013B	SAMP	1	110.37	1.32	15	PASS	0.031	28.1	15	<PQL
N025493-014B	SAMP	1	110.38	0.89	15	PASS	0.075	10.95	15	PASS
CCV2	CCV	1	20.18	0.54	15	PASS	19.91	1.44	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025493-017B	SAMP	1	118.46	1.074	15	PASS	0.0029	204.2	15	<PQL
CCV3	CCV	1	20.19	0.3	15	PASS	20.056	0.54	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.19	0.47	15	PASS	20.22	1.36	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV5	CCV	1	19.95	0.49	15	PASS	20.27	1.6	15	PASS
CCB5	CCB	1	0.00051	216.66	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.98	0.9	20	PASS	1.028	2.51	20	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.14	10.5	15	PASS
ICSAB2	ICSAB	1	21.81	0.46	15	PASS	19.22	0.16	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.14	11.33	15	PASS	0.098	6.013	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.52	3.89	15	PASS	0.51	6.66	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	2.33	15	PASS	5.083	1.86	15	PASS
Std4-10/100 ppb	ICAL	1	10.33	1.45	15	PASS	10.23	0.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.45	1.25	15	PASS	20.42	0.96	15	PASS
Std6-40/400 ppb	ICAL	1	40.8	1.44	15	PASS	40.45	0.54	15	PASS
Std7-100/1000 ppb	ICAL	1	101.31	1.033	15	PASS	101.73	0.39	15	PASS
Std8-200/2000 ppb	ICAL	1	199.12	1.034	15	PASS	198.99	1.054	15	PASS
ICV	ICV	1	94.47	1.83	15	PASS	9.5	0.61	15	PASS
ICB	ICB	1	0.015	22.97	15	<PQL	0.0038	181.19	15	<PQL
LLICV	CCV1	1	0.63	3.96	20	PASS	0.12	7.48	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	16.45	0.99	15	PASS	20.33	0.45	15	PASS
LLICV	CCV1	1	0.53	1.55	20	PASS	0.1	14.72	20	PASS
MB-63426	MBLK	1	0.22	4.67	15	PASS	<0.000	N/A	15	<PQL
LCS-63426	LCS	1	94.9	0.48	15	PASS	9.57	1.32	15	PASS
N025493-001B	SAMP	1	<0.000	N/A	15	<PQL	2.15	0.45	15	PASS
N025493-001B	SAMP	5	<0.000	N/A	15	<PQL	0.49	4.97	15	PASS
N025493-001B-PS	PS	1	87.044	0.26	15	PASS	11.27	0.83	15	PASS
N025493-001B-MS	MS	1	86.77	1.22	15	PASS	11.32	0.44	15	PASS
N025493-001B-MSD	MSD	1	86.8	0.45	15	PASS	11.14	1.43	15	PASS
N025493-002B	SAMP	1	<0.000	N/A	15	<PQL	2.15	2.85	15	PASS
N025493-003B	SAMP	1	<0.000	N/A	15	<PQL	2.27	1.4	15	PASS
N025493-004B	SAMP	1	<0.000	N/A	15	<PQL	2.13	2.12	15	PASS
CCV1	CCV	1	20.58	0.77	15	PASS	20.27	1.028	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0086	74.5	15	<PQL
N025493-005B	SAMP	1	<0.000	N/A	15	<PQL	2.21	4.54	15	PASS
N025493-006B	SAMP	1	<0.000	N/A	15	<PQL	2.15	2.5	15	PASS
N025493-007B	SAMP	1	<0.000	N/A	15	<PQL	2.094	0.78	15	PASS
N025493-008B	SAMP	1	3.79	2.71	15	PASS	2.1	4.13	15	PASS
N025493-009B	SAMP	1	3.48	1.49	15	PASS	2.15	3.55	15	PASS
N025493-010B	SAMP	1	3.01	2.36	15	PASS	2.18	2.95	15	PASS
N025493-011B	SAMP	1	<0.000	N/A	15	<PQL	2.18	0.2	15	PASS
N025493-012B	SAMP	1	<0.000	N/A	15	<PQL	2.08	0.52	15	PASS
N025493-013B	SAMP	1	<0.000	N/A	15	<PQL	2.14	1.076	15	PASS
N025493-014B	SAMP	1	<0.000	N/A	15	<PQL	2.15	2.34	15	PASS
CCV2	CCV	1	20.26	2.38	15	PASS	20.34	0.76	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0055	152.62	15	<PQL
N025493-017B	SAMP	1	0.082	27.17	15	<PQL	2.25	1.00032	15	PASS
CCV3	CCV	1	20.33	0.96	15	PASS	20.25	0.83	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB3	CCB	1	0.00073	207.9	15	<PQL	0.016	50.1	15	<PQL
CCV4	CCV	1	20.31	1.9	15	PASS	20.33	0.78	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.0068	46.21	15	<PQL
CCV5	CCV	1	20.39	1.88	15	PASS	20.27	1.6	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.0099	68.77	15	<PQL
LLCCV1	CCV2	1	0.52	3.21	20	PASS	0.12	6.95	20	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.67	0.75	15	PASS	20.12	0.38	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.055	32.76	15	<PQL	0.096	15.51	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.55	6.67	15	PASS	0.49	4.89	15	PASS
Std3-5/50 ppb	ICAL	1	4.84	4.51	15	PASS	4.94	0.46	15	PASS
Std4-10/100 ppb	ICAL	1	9.58	1.89	15	PASS	9.86	0.13	15	PASS
Std5-20/200 ppb	ICAL	1	20.29	3.93	15	PASS	19.58	1.7	15	PASS
Std6-40/400 ppb	ICAL	1	40.42	0.75	15	PASS	39.59	0.82	15	PASS
Std7-100/1000 ppb	ICAL	1	101.34	1.88	15	PASS	99.14	0.38	15	PASS
Std8-200/2000 ppb	ICAL	1	199.24	0.64	15	PASS	200.56	0.85	15	PASS
ICV	ICV	1	9.21	3.4	15	PASS	9.24	0.93	15	PASS
ICB	ICB	1	0.0019	204.99	15	<PQL	0.062	11.3	15	PASS
LLICV	CCV1	1	0.49	2.37	20	PASS	0.5	2.19	20	PASS
ICSA1	ICSA	1	0.0032	375.85	15	<PQL	0.049	5.051	15	PASS
ICSAB1	ICSAB	1	18.91	2.21	15	PASS	21.084	1.18	15	PASS
LLICV	CCV1	1	0.55	3.52	20	PASS	0.52	3.46	20	PASS
MB-63426	MBLK	1	<0.000	N/A	15	<PQL	0.0077	64.44	15	<PQL
LCS-63426	LCS	1	9.39	3.32	15	PASS	9.17	2.33	15	PASS
N025493-001B	SAMP	1	1.42	8.33	15	PASS	4.65	0.43	15	PASS
N025493-001B	SAMP	5	0.33	16.97	15	<PQL	1	0.79	15	PASS
N025493-001B-PS	PS	1	10.52	1.6	15	PASS	14.17	1.2	15	PASS
N025493-001B-MS	MS	1	10.7	0.6	15	PASS	14.29	1.018	15	PASS
N025493-001B-MSD	MSD	1	10.5	3.13	15	PASS	14.17	0.84	15	PASS
N025493-002B	SAMP	1	1.41	4.8	15	PASS	4.59	0.81	15	PASS
N025493-003B	SAMP	1	1.47	1.95	15	PASS	4.65	1.65	15	PASS
N025493-004B	SAMP	1	1.51	4.19	15	PASS	4.66	0.47	15	PASS
CCV1	CCV	1	20.073	1.017	15	PASS	19.72	0.89	15	PASS
CCB1	CCB	1	0.0054	164.048	15	<PQL	0.083	8.68	15	PASS
N025493-005B	SAMP	1	1.53	3.38	15	PASS	4.6	1.45	15	PASS
N025493-006B	SAMP	1	1.44	9.52	15	PASS	4.66	1.75	15	PASS
N025493-007B	SAMP	1	1.5	8.099	15	PASS	4.46	1.27	15	PASS
N025493-008B	SAMP	1	1.45	6.15	15	PASS	4.44	1.048	15	PASS
N025493-009B	SAMP	1	1.27	10.52	15	PASS	4.8	0.78	15	PASS
N025493-010B	SAMP	1	1.55	10.26	15	PASS	4.8	1.63	15	PASS
N025493-011B	SAMP	1	1.36	4.58	15	PASS	4.68	1.92	15	PASS
N025493-012B	SAMP	1	1.39	7.36	15	PASS	4.34	0.26	15	PASS
N025493-013B	SAMP	1	1.52	8.96	15	PASS	4.51	1.86	15	PASS
N025493-014B	SAMP	1	1.45	9.22	15	PASS	4.62	0.36	15	PASS
CCV2	CCV	1	20.31	0.91	15	PASS	19.68	1.82	15	PASS
CCB2	CCB	1	0.019	168.29	15	<PQL	0.082	1.73	15	PASS
N025493-017B	SAMP	1	1.51	4.99	15	PASS	4.83	3.22	15	PASS
CCV3	CCV	1	20.56	0.53	15	PASS	19.81	0.34	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB3	CCB	1	0.012	105.22	15	<PQL	0.077	4.42	15	PASS
CCV4	CCV	1	20.78	1.79	15	PASS	19.47	0.69	15	PASS
CCB4	CCB	1	0.015	85.071	15	<PQL	0.08	16.44	15	<PQL
CCV5	CCV	1	20.35	2.59	15	PASS	19.55	0.3	15	PASS
CCB5	CCB	1	0.01	228.87	15	<PQL	0.084	7.33	15	PASS
LLCCV1	CCV2	1	0.51	5.78	20	PASS	0.51	7.71	20	PASS
ICSA2	ICSA	1	0.0056	198.69	15	<PQL	0.037	11.97	15	PASS
ICSAB2	ICSAB	1	18.83	2.081	15	PASS	20.89	0.94	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170828A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0828001.D	RINSE	RINSE	1	08/28/17 9:06 AM
A0828002.D	Cal Blank	IBLK	1	08/28/17 9:12 AM
A0828003.D	Std1-0.1/1 ppb	ICAL	1	08/28/17 9:17 AM
A0828004.D	Std2-0.5/5 ppb	ICAL	1	08/28/17 9:23 AM
A0828005.D	Std3-5/50 ppb	ICAL	1	08/28/17 9:28 AM
A0828006.D	Std4-10/100 ppb	ICAL	1	08/28/17 9:34 AM
A0828007.D	Std5-20/200 ppb	ICAL	1	08/28/17 9:39 AM
A0828008.D	Std6-40/400 ppb	ICAL	1	08/28/17 9:45 AM
A0828009.D	Std7-100/1000 ppb	ICAL	1	08/28/17 9:50 AM
A0828010.D	Std8-200/2000 ppb	ICAL	1	08/28/17 9:56 AM
A0828011.D	ICV	ICV	1	08/28/17 10:01 AM
A0828012.D	ICB	ICB	1	08/28/17 10:07 AM
A0828013.D	LLICV	CCV1	1	08/28/17 10:12 AM
A0828014.D	ICSA1	ICSA	1	08/28/17 10:18 AM
A0828015.D	ICSAB1	ICSAB	1	08/28/17 10:23 AM
A0828016.D	LLICV	CCV1	1	08/28/17 10:36 AM
A0828017.D	MB-63426	MBLK	1	08/28/17 10:41 AM
A0828018.D	LCS-63426	LCS	1	08/28/17 10:46 AM
A0828019.D	N025493-001B	SAMP	1	08/28/17 10:52 AM
A0828020.D	N025493-001B	SAMP	5	08/28/17 10:58 AM
A0828021.D	N025493-001B-PS	PS	1	08/28/17 11:02 AM
A0828022.D	N025493-001B-MS	MS	1	08/28/17 11:08 AM
A0828023.D	N025493-001B-MSD	MSD	1	08/28/17 11:14 AM
A0828024.D	N025493-002B	SAMP	1	08/28/17 11:20 AM
A0828025.D	N025493-003B	SAMP	1	08/28/17 11:26 AM
A0828026.D	N025493-004B	SAMP	1	08/28/17 11:31 AM
A0828027.D	CCV1	CCV	1	08/28/17 11:37 AM
A0828028.D	CCB1	CCB	1	08/28/17 11:42 AM
A0828029.D	N025493-005B	SAMP	1	08/28/17 11:48 AM
A0828030.D	N025493-006B	SAMP	1	08/28/17 11:53 AM
A0828031.D	N025493-007B	SAMP	1	08/28/17 11:59 AM
A0828032.D	N025493-008B	SAMP	1	08/28/17 12:04 PM
A0828033.D	N025493-009B	SAMP	1	08/28/17 12:10 PM
A0828034.D	N025493-010B	SAMP	1	08/28/17 12:15 PM
A0828035.D	N025493-011B	SAMP	1	08/28/17 12:21 PM
A0828036.D	N025493-012B	SAMP	1	08/28/17 12:26 PM
A0828037.D	N025493-013B	SAMP	1	08/28/17 12:32 PM
A0828038.D	N025493-014B	SAMP	1	08/28/17 12:37 PM
A0828039.D	CCV2	CCV	1	08/28/17 12:43 PM
A0828040.D	CCB2	CCB	1	08/28/17 12:49 PM
A0828041.D	N025493-017B	SAMP	1	08/28/17 1:03 PM
A0828042.D	MB-63427	MBLK	1	08/28/17 1:08 PM

INJECTION LOG: 170828A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0828043.D	LCS-63427	LCS	1	08/28/17 1:14 PM
A0828044.D	N025503-001B	SAMP	1	08/28/17 1:19 PM
A0828045.D	N025503-001B	SAMP	5	08/28/17 1:25 PM
A0828046.D	N025503-001B-PS	PS	1	08/28/17 1:30 PM
A0828047.D	N025503-001B-MS	MS	1	08/28/17 1:36 PM
A0828048.D	N025503-001B-MSD	MSD	1	08/28/17 1:41 PM
A0828049.D	N025503-003B	SAMP	1	08/28/17 1:47 PM
A0828050.D	N025503-004B	SAMP	1	08/28/17 1:52 PM
A0828051.D	CCV3	CCV	1	08/28/17 1:58 PM
A0828052.D	CCB3	CCB	1	08/28/17 2:04 PM
A0828053.D	N025503-005B	SAMP	1	08/28/17 2:09 PM
A0828054.D	N025503-006B	SAMP	1	08/28/17 2:15 PM
A0828055.D	N025503-007B	SAMP	1	08/28/17 2:20 PM
A0828056.D	N025503-008B	SAMP	1	08/28/17 2:26 PM
A0828057.D	N025503-009B	SAMP	1	08/28/17 2:31 PM
A0828058.D	N025503-010B	SAMP	1	08/28/17 2:37 PM
A0828059.D	N025503-011B	SAMP	1	08/28/17 2:42 PM
A0828060.D	N025503-012B	SAMP	1	08/28/17 2:48 PM
A0828061.D	N025503-013B	SAMP	1	08/28/17 2:53 PM
A0828062.D	N025503-014B	SAMP	1	08/28/17 2:59 PM
A0828063.D	CCV4	CCV	1	08/28/17 3:04 PM
A0828064.D	CCB4	CCB	1	08/28/17 3:10 PM
A0828065.D	N025503-015B	SAMP	1	08/28/17 3:15 PM
A0828066.D	CCV5	CCV	1	08/28/17 3:21 PM
A0828067.D	CCB5	CCB	1	08/28/17 3:26 PM
A0828068.D	LLCCV1	CCV2	1	08/28/17 3:32 PM
A0828069.D	ICSA2	ICSA	1	08/28/17 3:38 PM
A0828070.D	ICSAB2	ICSAB	1	08/28/17 3:52 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 5:49:52 A**
Prep End Date: **8/19/2017 10:00:00**
Prep Batch **63426** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 8/30/2017
Initials/ Date: 8/30/2017
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**02-19**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63426	Aqueous		25	☐	0	0	25	1.000		
MB-63426	Aqueous		25	☐	0	0	25	1.000		
N025493-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-010B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 5:49:52 A**
Prep End Date: **8/19/2017 10:00:00**

Reviewed/ Date: 8/30/2017
Initials/ Date: 8/30/2017

Prep Batch **63426** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**02-19**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025493-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N025493-017B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 28 Aug 2017 08:26:25 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	129997.00	0.00	
24 Mg	599157.00	0.00	
25 Mg	80027.50	0.00	
26 Mg	94139.40	0.00	
59 Co	841130.00	0.00	
115 In	1387670.00	0.00	
206 Pb	367817.00	0.00	
207 Pb	320836.00	0.00	
208 Pb	787240.00	0.00	

RSD (%)

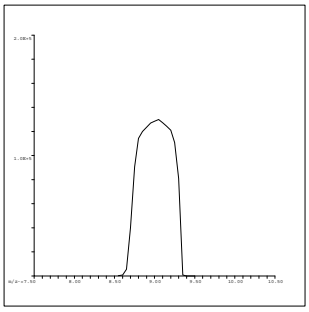
Element	Actual	Required	Flag
9 Be	0.78	5.00	
24 Mg	0.29	5.00	
25 Mg	0.64	5.00	
26 Mg	0.32	5.00	
59 Co	0.51	5.00	
115 In	0.69	5.00	
206 Pb	0.60	5.00	
207 Pb	0.54	5.00	
208 Pb	0.82	5.00	

Ion Ratio

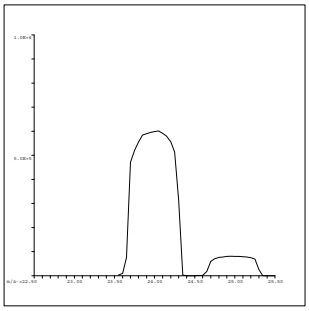
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

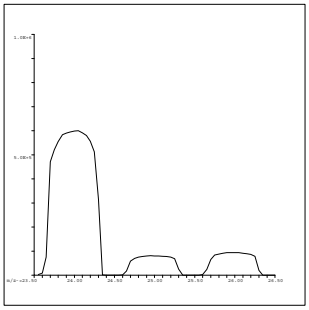
Element	Actual	Required	Flag



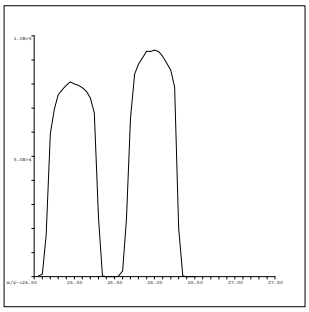
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



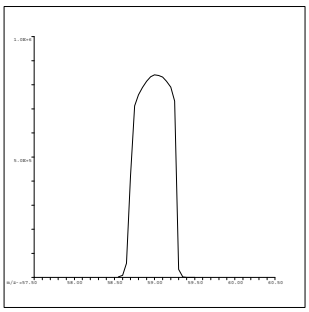
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



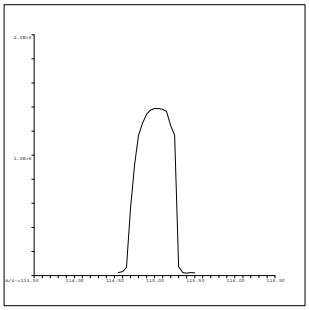
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



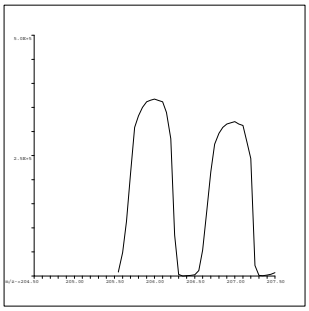
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



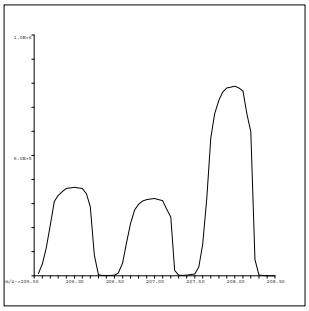
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



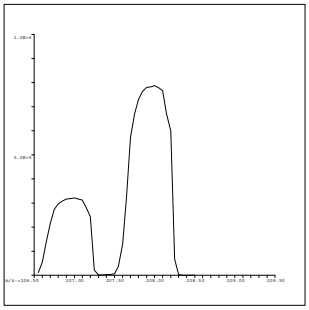
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170828A

Instrument ID: ICPMS-02

Analyte	Data File	A0828002.D	A0828003.D	A0828004.D	A0828005.D	A0828006.D	A0828007.D	A0828008.D	A0828009.D	A0828010.D	
	Acq. Date-Time	08/28/2017 09:12 AM	08/28/2017 09:17 AM	08/28/2017 09:23 AM	08/28/2017 09:28 AM	08/28/2017 09:34 AM	08/28/2017 09:39 AM	08/28/2017 09:45 AM	08/28/2017 09:50 AM	08/28/2017 09:56 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	123489.9		125683.1	125304.3	126708.7	128205.7	127458.8	124943.6	125236.6	
55 Mn [2]	CPS	178.7		2960.7	27712.1	55509.2	111035.8	220024.7	535391.5	1054523.5	1.0000
52 Cr [2]	CPS	606.7		6029	54098.1	107870.5	215392	427599.4	1038569	2106026.7	1.0000
72 Ge (ISTD) [1]	CPS	136499.6		137815.3	138085.8	138795.3	138857.4	137077	135601.4	135854.7	
78 Se [1]	CPS	3.3		253.3	2224.7	4421.9	9365.2	18424.2	45689.3	89989.3	1.0000
72 Ge (ISTD) [2]	CPS	100012.2	101731.6	100062.4	99828.5	100352.9	100437	99808.7	96961.9	98345.7	
75 As [2]	CPS	26.7	154.7	683.1	6520.9	13161.4	26274.1	51693.2	126273.2	250437.5	0.9999
103 Rh (ISTD) [2]	CPS	2845775.8		2799851.3	2813504.1	2822871.5	2870319	2820131.7	2749543.6	2742588.5	
95 Mo [2]	CPS	113.3		3448.3	34075.8	68099.3	137386.9	272803	665766.1	1343416.3	1.0000
159 Tb (ISTD) [3]	CPS	8301212.7		8075975.1	7982293.5	8027318.7	8082963.8	8004436.8	7860557.9	7903948.9	
137 Ba [3]	CPS	197		7798.9	73728.7	147066.5	295023.4	577547.4	1422145	2807227.3	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.504	0.10	10.00	0	95.0	90	110				
Barium	9.431	1.0	10.00	0	94.3	90	110				
Manganese	94.471	0.50	100.0	0	94.5	90	110				
Molybdenum	9.240	0.50	10.00	0	92.4	90	110				
Selenium	9.214	0.50	10.00	0	92.1	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.105	0.10	0.1000	0	105	80	120				
Barium	1.030	1.0	1.000	0	103	80	120				
Manganese	0.528	0.50	0.5000	0	106	80	120				
Molybdenum	0.517	0.50	0.5000	0	103	80	120				
Selenium	0.552	0.50	0.5000	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.266	0.10	20.00	0	101	90	110				
Barium	20.298	1.0	20.00	0	101	90	110				
Manganese	20.577	0.50	20.00	0	103	90	110				
Molybdenum	19.716	0.50	20.00	0	98.6	90	110				
Selenium	20.073	0.50	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.339	0.10	20.00	0	102	90	110				
Barium	20.177	1.0	20.00	0	101	90	110				
Manganese	20.258	0.50	20.00	0	101	90	110				
Molybdenum	19.676	0.50	20.00	0	98.4	90	110				
Selenium	20.314	0.50	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.253	0.10	20.00	0	101	90	110				
Barium	20.191	1.0	20.00	0	101	90	110				
Manganese	20.332	0.50	20.00	0	102	90	110				
Molybdenum	19.808	0.50	20.00	0	99.0	90	110				
Selenium	20.561	0.50	20.00	0	103	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749074**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.326	0.10	20.00	0	102	90	110				
Barium	20.194	1.0	20.00	0	101	90	110				
Manganese	20.309	0.50	20.00	0	102	90	110				
Molybdenum	19.473	0.50	20.00	0	97.4	90	110				
Selenium	20.776	0.50	20.00	0	104	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.269	0.10	20.00	0	101	90	110				
Barium	19.951	1.0	20.00	0	99.8	90	110				
Manganese	20.392	0.50	20.00	0	102	90	110				
Molybdenum	19.554	0.50	20.00	0	97.8	90	110				
Selenium	20.354	0.50	20.00	0	102	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.124	0.10	0.1000	0	124	70	130				
Barium	0.983	1.0	1.000	0	98.3	70	130				
Manganese	0.519	0.50	0.5000	0	104	70	130				
Molybdenum	0.512	0.50	0.5000	0	102	70	130				
Selenium	0.510	0.50	0.5000	0	102	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.439	1.0	10.00	0	94.4	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ZZZZZZ**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.023	1.0	1.000	0	102	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.923	1.0	20.00	0	99.6	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.911	1.0	20.00	0	99.6	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.056	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.217	1.0	20.00	0	101	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.275	1.0	20.00	0	101	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ZZZZZZ**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.028	1.0	1.000	0	103	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.062	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.083	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.082	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749063**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.077	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.080	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.084	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748998**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **117521**
Client ID: **ICSA** Batch ID: **R117521** TestNo: **EPA 6020** Analysis Date: **8/28/2017** SeqNo: **2749025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.049	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **117521**
Client ID: **ICSAB** Batch ID: **R117521** TestNo: **EPA 6020** Analysis Date: **8/28/2017** SeqNo: **2749026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.333	0.10	20.00	0	102	80	120				
Barium	16.623	1.0	20.00	0	83.1	80	120				
Manganese	16.450	0.50	20.00	0	82.2	80	120				
Molybdenum	21.084	0.50	20.00	0	105	80	120				
Selenium	18.911	0.50	20.00	0	94.6	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **117521**
Client ID: **ICSA** Batch ID: **R117521** TestNo: **EPA 6020** Analysis Date: **8/28/2017** SeqNo: **2749080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICSAB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.116	0.10	20.00	0	101	80	120				
Barium	21.812	1.0	20.00	0	109	80	120				
Manganese	19.667	0.50	20.00	0	98.3	80	120				
Molybdenum	20.890	0.50	20.00	0	104	80	120				
Selenium	18.825	0.50	20.00	0	94.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSA**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.139	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSAB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.218	1.0	20.00	0	96.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSA**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.145	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSAB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.221	1.0	20.00	0	96.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	8301212.7	8301212.7	100	PASS	70-125	123489.9	123489.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	8289496.5	8301212.7	99.86	PASS	70-125	127823.2	123489.9	103.51	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	8075975.1	8301212.7	97.29	PASS	70-125	125683.1	123489.9	101.78	PASS	70-125
Std3-5/50 ppb	ICAL	1	7982293.5	8301212.7	96.16	PASS	70-125	125304.3	123489.9	101.47	PASS	70-125
Std4-10/100 ppb	ICAL	1	8027318.7	8301212.7	96.7	PASS	70-125	126708.7	123489.9	102.61	PASS	70-125
Std5-20/200 ppb	ICAL	1	8082963.8	8301212.7	97.37	PASS	70-125	128205.7	123489.9	103.82	PASS	70-125
Std6-40/400 ppb	ICAL	1	8004436.8	8301212.7	96.42	PASS	70-125	127458.8	123489.9	103.21	PASS	70-125
Std7-100/1000 ppb	ICAL	1	7860557.9	8301212.7	94.69	PASS	70-125	124943.6	123489.9	101.18	PASS	70-125
Std8-200/2000 ppb	ICAL	1	7903948.9	8301212.7	95.21	PASS	70-125	125236.6	123489.9	101.41	PASS	70-125
ICV	ICV	1	8717807.9	8301212.7	105.02	PASS	70-125	131511	123489.9	106.5	PASS	70-125
ICB	ICB	1	8549670.4	8301212.7	102.99	PASS	70-125	136407.2	123489.9	110.46	PASS	70-125
LLICV	CCV1	1	7726266.9	8301212.7	93.074	PASS	70-125	123941.2	123489.9	100.37	PASS	70-125
ICSA1	ICSA	1	7098170.8	8301212.7	85.51	PASS	70-125	123992	123489.9	100.41	PASS	70-125
ICSAB1	ICSAB	1	7138640	8301212.7	86	PASS	70-125	134567.9	123489.9	108.97	PASS	70-125
LLICV	CCV1	1	7770168.8	8301212.7	93.6	PASS	70-125	127818	123489.9	103.5	PASS	70-125
MB-63426	MBLK	1	8135873.5	8301212.7	98.008	PASS	70-125	153472.6	123489.9	124.28	PASS	70-125
LCS-63426	LCS	1	8099667	8301212.7	97.57	PASS	70-125	122957.7	123489.9	99.57	PASS	70-125
N025493-001B	SAMP	1	7850786.3	8301212.7	94.57	PASS	70-125	141090.8	123489.9	114.25	PASS	70-125
N025493-001B	SAMP	5	7423524.2	8301212.7	89.43	PASS	70-125	126437.7	123489.9	102.39	PASS	70-125
N025493-001B-PS	PS	1	7290495.7	8301212.7	87.82	PASS	70-125	106935.8	123489.9	86.59	PASS	70-125
N025493-001B-MS	MS	1	7399741.7	8301212.7	89.14	PASS	70-125	116971.7	123489.9	94.72	PASS	70-125
N025493-001B-MSD	MSD	1	7303021.6	8301212.7	87.98	PASS	70-125	115641.7	123489.9	93.64	PASS	70-125
N025493-002B	SAMP	1	7800971.7	8301212.7	93.97	PASS	70-125	133427.6	123489.9	108.05	PASS	70-125
N025493-003B	SAMP	1	7562035.4	8301212.7	91.096	PASS	70-125	130415.4	123489.9	105.61	PASS	70-125
N025493-004B	SAMP	1	7614487.8	8301212.7	91.73	PASS	70-125	131558.5	123489.9	106.53	PASS	70-125
CCV1	CCV	1	7800711.6	8301212.7	93.97	PASS	70-125	132591.2	123489.9	107.37	PASS	70-125
CCB1	CCB	1	7586847.8	8301212.7	91.39	PASS	70-125	123543	123489.9	100.04	PASS	70-125
N025493-005B	SAMP	1	7670488.9	8301212.7	92.4	PASS	70-125	125920.2	123489.9	101.97	PASS	70-125
N025493-006B	SAMP	1	7472462.9	8301212.7	90.017	PASS	70-125	124305.1	123489.9	100.66	PASS	70-125
N025493-007B	SAMP	1	7615611.7	8301212.7	91.74	PASS	70-125	127375.8	123489.9	103.15	PASS	70-125
N025493-008B	SAMP	1	7391348.1	8301212.7	89.039	PASS	70-125	125110.8	123489.9	101.31	PASS	70-125
N025493-009B	SAMP	1	7731686.4	8301212.7	93.14	PASS	70-125	131571.1	123489.9	106.54	PASS	70-125
N025493-010B	SAMP	1	7515400.7	8301212.7	90.53	PASS	70-125	128960.3	123489.9	104.43	PASS	70-125
N025493-011B	SAMP	1	7533133.9	8301212.7	90.75	PASS	70-125	127480	123489.9	103.23	PASS	70-125
N025493-012B	SAMP	1	7524429.7	8301212.7	90.64	PASS	70-125	127549.2	123489.9	103.29	PASS	70-125
N025493-013B	SAMP	1	7591680.7	8301212.7	91.45	PASS	70-125	128225.3	123489.9	103.83	PASS	70-125
N025493-014B	SAMP	1	7747182.3	8301212.7	93.33	PASS	70-125	132413.1	123489.9	107.23	PASS	70-125
CCV2	CCV	1	7735883.6	8301212.7	93.19	PASS	70-125	130921.3	123489.9	106.02	PASS	70-125
CCB2	CCB	1	7543931.8	8301212.7	90.88	PASS	70-125	122642.8	123489.9	99.31	PASS	70-125
N025493-017B	SAMP	1	7813817	8301212.7	94.13	PASS	70-125	130081.8	123489.9	105.34	PASS	70-125
CCV3	CCV	1	7593273.5	8301212.7	91.47	PASS	70-125	125869.2	123489.9	101.93	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB3	CCB	1	7435603	8301212.7	89.57	PASS	70-125	119314.8	123489.9	96.62	PASS	70-125
CCV4	CCV	1	7494527.2	8301212.7	90.28	PASS	70-125	124525.9	123489.9	100.84	PASS	70-125
CCB4	CCB	1	7419016.2	8301212.7	89.37	PASS	70-125	118773.1	123489.9	96.18	PASS	70-125
CCV5	CCV	1	7428044.8	8301212.7	89.48	PASS	70-125	118868.6	123489.9	96.26	PASS	70-125
CCB5	CCB	1	7265213.2	8301212.7	87.52	PASS	70-125	112332.5	123489.9	90.96	PASS	70-125
LLCCV1	CCV2	1	6865467.6	8301212.7	82.7	PASS	70-125	104216.5	123489.9	84.39	PASS	70-125
ICSA2	ICSA	1	6533692.1	8301212.7	78.71	PASS	70-125	110493.1	123489.9	89.48	PASS	70-125
ICSAB2	ICSAB	1	6705633.7	8301212.7	80.78	PASS	70-125	112713	123489.9	91.27	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	100012.2	100012.2	100	PASS	70-125	136499.6	136499.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	101731.6	100012.2	101.72	PASS	70-125	139228	136499.6	102	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	100062.4	100012.2	100.05	PASS	70-125	137815.3	136499.6	100.96	PASS	70-125
Std3-5/50 ppb	ICAL	1	99828.5	100012.2	99.82	PASS	70-125	138085.8	136499.6	101.16	PASS	70-125
Std4-10/100 ppb	ICAL	1	100352.9	100012.2	100.34	PASS	70-125	138795.3	136499.6	101.68	PASS	70-125
Std5-20/200 ppb	ICAL	1	100437	100012.2	100.42	PASS	70-125	138857.4	136499.6	101.73	PASS	70-125
Std6-40/400 ppb	ICAL	1	99808.7	100012.2	99.8	PASS	70-125	137077	136499.6	100.42	PASS	70-125
Std7-100/1000 ppb	ICAL	1	96961.9	100012.2	96.95	PASS	70-125	135601.4	136499.6	99.34	PASS	70-125
Std8-200/2000 ppb	ICAL	1	98345.7	100012.2	98.33	PASS	70-125	135854.7	136499.6	99.53	PASS	70-125
ICV	ICV	1	102683.2	100012.2	102.67	PASS	70-125	128820.9	136499.6	94.37	PASS	70-125
ICB	ICB	1	107637.7	100012.2	107.62	PASS	70-125	144542.7	136499.6	105.89	PASS	70-125
LLICV	CCV1	1	100167.1	100012.2	100.15	PASS	70-125	137602.8	136499.6	100.81	PASS	70-125
ICSA1	ICSA	1	93586.7	100012.2	93.58	PASS	70-125	126911.8	136499.6	92.98	PASS	70-125
ICSAB1	ICSAB	1	99978.6	100012.2	99.97	PASS	70-125	134407.1	136499.6	98.47	PASS	70-125
LLICV	CCV1	1	100182.2	100012.2	100.17	PASS	70-125	127218.6	136499.6	93.2	PASS	70-125
MB-63426	MBLK	1	117854.2	100012.2	117.84	PASS	70-125	165196.8	136499.6	121.02	PASS	70-125
LCS-63426	LCS	1	96260	100012.2	96.25	PASS	70-125	119951.4	136499.6	87.88	PASS	70-125
N025493-001B	SAMP	1	107904.9	100012.2	107.89	PASS	70-125	154868.8	136499.6	113.46	PASS	70-125
N025493-001B	SAMP	5	99244.5	100012.2	99.23	PASS	70-125	137971.1	136499.6	101.08	PASS	70-125
N025493-001B-PS	PS	1	82641.7	100012.2	82.63	PASS	70-125	98304.1	136499.6	72.018	PASS	70-125
N025493-001B-MS	MS	1	91268.3	100012.2	91.26	PASS	70-125	115886.8	136499.6	84.9	PASS	70-125
N025493-001B-MSD	MSD	1	90449.3	100012.2	90.44	PASS	70-125	114876.2	136499.6	84.16	PASS	70-125
N025493-002B	SAMP	1	102601.5	100012.2	102.59	PASS	70-125	141251.4	136499.6	103.48	PASS	70-125
N025493-003B	SAMP	1	99723.8	100012.2	99.71	PASS	70-125	135974.7	136499.6	99.62	PASS	70-125
N025493-004B	SAMP	1	100470.6	100012.2	100.46	PASS	70-125	135670.3	136499.6	99.39	PASS	70-125
CCV1	CCV	1	103193.7	100012.2	103.18	PASS	70-125	139545.6	136499.6	102.23	PASS	70-125
CCB1	CCB	1	97952.4	100012.2	97.94	PASS	70-125	131951.7	136499.6	96.67	PASS	70-125
N025493-005B	SAMP	1	98092.8	100012.2	98.081	PASS	70-125	131218.6	136499.6	96.13	PASS	70-125
N025493-006B	SAMP	1	97799.9	100012.2	97.79	PASS	70-125	131105.9	136499.6	96.049	PASS	70-125
N025493-007B	SAMP	1	98743.5	100012.2	98.73	PASS	70-125	134024.4	136499.6	98.19	PASS	70-125
N025493-008B	SAMP	1	97859.4	100012.2	97.85	PASS	70-125	130771.8	136499.6	95.8	PASS	70-125
N025493-009B	SAMP	1	101365.9	100012.2	101.35	PASS	70-125	136281.9	136499.6	99.84	PASS	70-125
N025493-010B	SAMP	1	99050.9	100012.2	99.039	PASS	70-125	135374.1	136499.6	99.18	PASS	70-125
N025493-011B	SAMP	1	99271.4	100012.2	99.26	PASS	70-125	132115	136499.6	96.79	PASS	70-125
N025493-012B	SAMP	1	98843.8	100012.2	98.83	PASS	70-125	131561	136499.6	96.38	PASS	70-125
N025493-013B	SAMP	1	99330.2	100012.2	99.32	PASS	70-125	132770.4	136499.6	97.27	PASS	70-125
N025493-014B	SAMP	1	101759.5	100012.2	101.75	PASS	70-125	132170.8	136499.6	96.83	PASS	70-125
CCV2	CCV	1	101532.1	100012.2	101.52	PASS	70-125	132439.3	136499.6	97.025	PASS	70-125
CCB2	CCB	1	97539.6	100012.2	97.53	PASS	70-125	127682.4	136499.6	93.54	PASS	70-125
N025493-017B	SAMP	1	102852.1	100012.2	102.84	PASS	70-125	141812.8	136499.6	103.89	PASS	70-125
CCV3	CCV	1	98329.9	100012.2	98.32	PASS	70-125	127486.3	136499.6	93.4	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB3	CCB	1	94702.2	100012.2	94.69	PASS	70-125	121681.5	136499.6	89.14	PASS	70-125
CCV4	CCV	1	97948.6	100012.2	97.94	PASS	70-125	122540.7	136499.6	89.77	PASS	70-125
CCB4	CCB	1	94214.4	100012.2	94.2	PASS	70-125	120407	136499.6	88.21	PASS	70-125
CCV5	CCV	1	93926	100012.2	93.91	PASS	70-125	120040.6	136499.6	87.94	PASS	70-125
CCB5	CCB	1	90621.9	100012.2	90.61	PASS	70-125	115566.8	136499.6	84.66	PASS	70-125
LLCCV1	CCV2	1	85646.6	100012.2	85.64	PASS	70-125	107770.8	136499.6	78.95	PASS	70-125
ICSA2	ICSA	1	84971.1	100012.2	84.96	PASS	70-125	103779.4	136499.6	76.029	PASS	70-125
ICSAB2	ICSAB	1	82801.6	100012.2	82.79	PASS	70-125	101831.2	136499.6	74.6	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2845775.8	2845775.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2874142.9	2845775.8	101	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2799851.3	2845775.8	98.39	PASS	70-125
Std3-5/50 ppb	ICAL	1	2813504.1	2845775.8	98.87	PASS	70-125
Std4-10/100 ppb	ICAL	1	2822871.5	2845775.8	99.2	PASS	70-125
Std5-20/200 ppb	ICAL	1	2870319	2845775.8	100.86	PASS	70-125
Std6-40/400 ppb	ICAL	1	2820131.7	2845775.8	99.099	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2749543.6	2845775.8	96.62	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2742588.5	2845775.8	96.37	PASS	70-125
ICV	ICV	1	2995591.6	2845775.8	105.26	PASS	70-125
ICB	ICB	1	3041627.3	2845775.8	106.88	PASS	70-125
LLICV	CCV1	1	2806560.7	2845775.8	98.62	PASS	70-125
ICSA1	ICSA	1	2451049.4	2845775.8	86.13	PASS	70-125
ICSAB1	ICSAB	1	2576944	2845775.8	90.55	PASS	70-125
LLICV	CCV1	1	2844652.7	2845775.8	99.96	PASS	70-125
MB-63426	MBLK	1	3156147.7	2845775.8	110.91	PASS	70-125
LCS-63426	LCS	1	2806700.2	2845775.8	98.63	PASS	70-125
N025493-001B	SAMP	1	2735027.5	2845775.8	96.11	PASS	70-125
N025493-001B	SAMP	5	2663132.8	2845775.8	93.58	PASS	70-125
N025493-001B-PS	PS	1	2258943.1	2845775.8	79.38	PASS	70-125
N025493-001B-MS	MS	1	2415727	2845775.8	84.89	PASS	70-125
N025493-001B-MSD	MSD	1	2391024.8	2845775.8	84.02	PASS	70-125
N025493-002B	SAMP	1	2645713.5	2845775.8	92.97	PASS	70-125
N025493-003B	SAMP	1	2588081	2845775.8	90.94	PASS	70-125
N025493-004B	SAMP	1	2591757.3	2845775.8	91.074	PASS	70-125
CCV1	CCV	1	2845965.4	2845775.8	100.01	PASS	70-125
CCB1	CCB	1	2760292.1	2845775.8	97	PASS	70-125
N025493-005B	SAMP	1	2569452	2845775.8	90.29	PASS	70-125
N025493-006B	SAMP	1	2508849	2845775.8	88.16	PASS	70-125
N025493-007B	SAMP	1	2561423.4	2845775.8	90.008	PASS	70-125
N025493-008B	SAMP	1	2519038.2	2845775.8	88.52	PASS	70-125
N025493-009B	SAMP	1	2625456.7	2845775.8	92.26	PASS	70-125
N025493-010B	SAMP	1	2587398.2	2845775.8	90.92	PASS	70-125
N025493-011B	SAMP	1	2569676.9	2845775.8	90.3	PASS	70-125
N025493-012B	SAMP	1	2554787.9	2845775.8	89.77	PASS	70-125
N025493-013B	SAMP	1	2583987.4	2845775.8	90.8	PASS	70-125
N025493-014B	SAMP	1	2644151.7	2845775.8	92.91	PASS	70-125
CCV2	CCV	1	2829391	2845775.8	99.42	PASS	70-125
CCB2	CCB	1	2765017.3	2845775.8	97.16	PASS	70-125
N025493-017B	SAMP	1	2663246.8	2845775.8	93.59	PASS	70-125
CCV3	CCV	1	2752263.7	2845775.8	96.71	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
CCB3	CCB	1	2697391.3	2845775.8	94.79	PASS	70-125
CCV4	CCV	1	2761967.9	2845775.8	97.055	PASS	70-125
CCB4	CCB	1	2683537.3	2845775.8	94.3	PASS	70-125
CCV5	CCV	1	2666193.5	2845775.8	93.69	PASS	70-125
CCB5	CCB	1	2601121	2845775.8	91.4	PASS	70-125
LLCCV1	CCV2	1	2417640.5	2845775.8	84.96	PASS	70-125
ICSA2	ICSA	1	2228583.6	2845775.8	78.31	PASS	70-125
ICSAB2	ICSAB	1	2238117.6	2845775.8	78.65	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N025493
Test Method: EPA 6020
Analysis Date: 8/28/2017

Matrix: Groundwater
Batch No.: 63426

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As, Cr, Mn, Mo and Se. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025493-001B DT 5X	Arsenic	ug/L	2.431439	NA	2.150458	13.07%	10
N025493-001B DT 5X	Barium	ug/L	123.3554	PASS	116.837	5.58%	10
N025493-001B DT 5X	Chromium	ug/L	0	NA	0		10
N025493-001B DT 5X	Manganese	ug/L	0	NA	0		10
N025493-001B DT 5X	Molybdenum	ug/L	4.999733	NA	4.651526	7.49%	10
N025493-001B DT 5X	Selenium	ug/L	1.673798	NA	1.424225	17.52%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**N025493-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID:	**ZZZZZZ**	Batch ID: **63426**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749032**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.266	0.10	10.00	2.150	91.2	80	120				
Barium	126.670	1.0	100.0	116.8	9.83	80	120				S
Manganese	87.044	0.50	100.0	0	87.0	80	120				
Molybdenum	14.165	0.50	10.00	4.652	95.1	80	120				
Selenium	10.520	0.50	10.00	1.424	91.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025493
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N025493-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63426	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748952

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.900	1.0	10.00	0	89.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

August 31, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N025503

RE: PG&E Topock - RMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 17, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
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ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *31-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025503-001A	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001B	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001C	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001D	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001E	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-002A	AB3-Q317	Groundwater	8/17/2017 2:00:00 PM	8/17/2017	8/31/2017
N025503-003A	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003B	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003C	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003D	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003E	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-004A	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004B	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004C	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004D	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004E	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-005A	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005B	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005C	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005D	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005E	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-006A	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006B	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006C	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006D	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006E	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-007A	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-007B	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-007C	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025503-007D	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-007E	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-008A	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008B	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008C	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008D	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008E	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-009A	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009B	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009C	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009D	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009E	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-010A	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010B	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010C	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010D	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010E	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-011A	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011B	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011C	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011D	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011E	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-012A	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012B	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012C	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012D	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012E	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-013A	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-013B	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-013C	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025503-013D	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-013E	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-014A	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014B	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014C	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014D	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014E	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-015A	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015B	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015C	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015D	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015E	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	970	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	970	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	970	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N025503-001DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	117213
Client ID:	ZZZZZZ	Batch ID:	R117213	TestNo:	EPA 120.1			Analysis Date:	8/18/2017	SeqNo:	2739898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	967.000	0.10						962.0	0.518	10	

Sample ID	N025503-012DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	117213
Client ID:	ZZZZZZ	Batch ID:	R117213	TestNo:	EPA 120.1			Analysis Date:	8/18/2017	SeqNo:	2739910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	953.000	0.10						949.0	0.421	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-001

Client Sample ID: MW-913-Q317
Collection Date: 8/17/2017 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-003

Client Sample ID: C-CON-D-Q317
Collection Date: 8/17/2017 10:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-008

Client Sample ID: C-NR1-S-Q317
Collection Date: 8/17/2017 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-009

Client Sample ID: C-NR3-D-Q317
Collection Date: 8/17/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-014

Client Sample ID: R-19-Q317
Collection Date: 8/17/2017 9:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025503-001DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117211**
Client ID: **ZZZZZZ**	Batch ID: **R117211**	TestNo: **SM4500-H+B**		Analysis Date: **8/18/2017**	SeqNo: **2739500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.040	0.10						8.040	0	10	H
Temp. at time of pH Analysis	22.300	0.10						22.50	0.893	10	H

Sample ID **N025505-001BDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117211**
Client ID: **ZZZZZZ**	Batch ID: **R117211**	TestNo: **SM4500-H+B**		Analysis Date: **8/18/2017**	SeqNo: **2739517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.520	0.10						7.510	0.133	10	H
Temp. at time of pH Analysis	23.500	0.10						23.50	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B** QC Batch: **63446**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	13	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B** QC Batch: **63446**				PrepDate	**8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	14	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**			PrepDate	**8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B** QC Batch: **63446**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B** QC Batch: **63446**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821C**	QC Batch: **63447**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821C**	QC Batch: **63447**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821C** QC Batch: **63447**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821C**	QC Batch: **63447**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	**LCS-63446**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/21/2017**	RunNo: **117304**
Client ID:	**LCSW**	Batch ID: **63446**	TestNo: **SM2540D**		Analysis Date: **8/21/2017**	SeqNo: **2740825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	933.000	10	1000	0	93.3	80	120				

Sample ID	**MB-63446**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/21/2017**	RunNo: **117304**
Client ID:	**PBW**	Batch ID: **63446**	TestNo: **SM2540D**		Analysis Date: **8/21/2017**	SeqNo: **2740826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	**N025503-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **8/21/2017**	RunNo: **117304**
Client ID:	**ZZZZZZ**	Batch ID: **63446**	TestNo: **SM2540D**		Analysis Date: **8/21/2017**	SeqNo: **2740828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-63447	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117305
Client ID:	LCSW	Batch ID:	63447	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740848

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	948.000	10	1000	0	94.8	80	120				

Sample ID	MB-63447	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117305
Client ID:	PBW	Batch ID:	63447	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740849

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N025503-012DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117305
Client ID:	ZZZZZZ	Batch ID:	63447	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740851

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 11:25 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	AB3-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 2:00:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A**	QC Batch: **R117236**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 11:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 12:21 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 12:40 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170821A** QC Batch: **R117277**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/21/2017 10:01 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 01:30 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A **EPA 6020**							
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 02:28 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 02:48 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 03:07 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 03:26 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 03:45 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 04:23 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 04:42 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 05:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 05:20 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 03:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R117236	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236		
Client ID:	PBW	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738001		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	ND	0.20											

Sample ID	LCS-R117236	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236		
Client ID:	LCSW	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738002		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	4.788	0.20	5.000	0	95.8	90	110						

Sample ID	N025503-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236		
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738004		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.036	0.20	1.000	0	104	90	110						

Sample ID	N025503-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236		
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738006		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	0.980	0.20	1.000	0	98.0	90	110						

Sample ID	N025503-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236		
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738010		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.081	0.20	1.000	0.05440	103	90	110						

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025503-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738012

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0.06330	99.7	90	110				

Sample ID	N025503-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738014

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0.05340	98.8	90	110				

Sample ID	N025503-006ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738015

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.054	0.20						0.05340	0	20	

Sample ID	N025503-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738016

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.012	0.20	1.000	0	101	90	110	1.036	2.26	20	

Sample ID	N025503-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738020

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0.04490	98.4	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N025503-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0.04750	101	90	110				

Sample ID **N025503-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.064	0.20	1.000	0.05430	101	90	110				

Sample ID **N025503-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.072	0.20	1.000	0.04490	103	90	110				

Sample ID **N025503-011AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110				

Sample ID **N025503-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738032**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.040	0.20	1.000	0.04900	99.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025503-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.006	0.20	1.000	0	101	90	110				

Sample ID	N025503-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738036

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.044	0.20	1.000	0.04930	99.5	90	110				

Sample ID	N025503-015AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738038

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.050	0.20	1.000	0.08060	97.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R117277**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **PBW**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R117277**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **LCSW**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.886	0.20	5.000	0	97.7	90	110				

Sample ID **N025503-005ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ZZZZZZ**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.051	0.20						0.05160	0	20	

Sample ID **N025503-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ZZZZZZ**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.084	0.20	1.000	0.05160	103	90	110				

Sample ID **N025503-005AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ZZZZZZ**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.072	0.20	1.000	0.05160	102	90	110	1.084	1.13	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63427	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	PBW	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748973

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63427	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	LCSW	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748974

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.396	1.0	10.00	0	94.0	85	115				

Sample ID	N025503-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748978

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.903	1.0	10.00	0	89.0	75	125				

Sample ID	N025503-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748979

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.876	1.0	10.00	0	88.8	75	125	8.903	0.309	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.42	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.43	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.42	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.44	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117445	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	PBW	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746243

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R117445	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	LCSW	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746244

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101	85	115				

Sample ID	N025493-002EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746246

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.390	0.050						0.3978	1.98	20	

Sample ID	N025493-002EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746249

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.839	0.050	0.5000	0.3978	88.1	75	125				

Sample ID	N025493-002EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117445
Client ID:	ZZZZZZ	Batch ID:	R117445	TestNo:	SM4500-NO3			Analysis Date:	8/23/2017	SeqNo:	2746250

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.844	0.050	0.5000	0.3978	89.2	75	125	0.8385	0.630	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117446	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	PBW	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R117446	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	LCSW	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746280

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.514	0.050	0.5000	0	103	85	115				

Sample ID	N025503-010EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	ZZZZZZ	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746282

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.415	0.050						0.4078	1.70	20	

Sample ID	N025503-010EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	ZZZZZZ	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746283

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.858	0.050	0.5000	0.4078	90.0	75	125				

Sample ID	N025503-010EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	ZZZZZZ	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746284

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.903	0.050	0.5000	0.4078	99.0	75	125	0.8579	5.09	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-001

Client Sample ID: MW-913-Q317
Collection Date: 8/17/2017 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 03:00 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	22	1.8	20		ug/L	1	8/29/2017 09:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-003

Client Sample ID: C-CON-D-Q317
Collection Date: 8/17/2017 10:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 03:23 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	140	1.8	20		ug/L	1	8/29/2017 01:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-004

Client Sample ID: C-CON-S-Q317
Collection Date: 8/17/2017 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 07:49 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	40	1.8	20		ug/L	1	8/29/2017 01:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-005

Client Sample ID: C-MAR-D-Q317
Collection Date: 8/17/2017 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 07:54 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	440	1.8	20		ug/L	1	8/29/2017 01:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-006

Client Sample ID: C-MAR-S-Q317
Collection Date: 8/17/2017 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 07:58 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	380	1.8	20		ug/L	1	8/29/2017 01:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-007

Client Sample ID: C-NR1-D-Q317
Collection Date: 8/17/2017 11:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:03 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	40	1.8	20		ug/L	1	8/29/2017 02:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-008

Client Sample ID: C-NR1-S-Q317
Collection Date: 8/17/2017 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:08 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	49	1.8	20		ug/L	1	8/29/2017 02:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-009

Client Sample ID: C-NR3-D-Q317
Collection Date: 8/17/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:13 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	70	1.8	20		ug/L	1	8/29/2017 02:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-010

Client Sample ID: C-NR3-S-Q317
Collection Date: 8/17/2017 12:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:17 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	29	1.8	20		ug/L	1	8/29/2017 02:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:22 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	120	1.8	20		ug/L	1	8/29/2017 02:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:27 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	43	1.8	20		ug/L	1	8/29/2017 02:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-013

Client Sample ID: C-NR4-S-Q317
Collection Date: 8/17/2017 1:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 04:21 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	59	1.8	20		ug/L	1	8/29/2017 02:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-014

Client Sample ID: R-19-Q317
Collection Date: 8/17/2017 9:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:31 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	120	1.8	20		ug/L	1	8/29/2017 02:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-015

Client Sample ID: RRB-Q317
Collection Date: 8/17/2017 9:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:45 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	33	1.8	20		ug/L	1	8/29/2017 02:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **MB-63442**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **PBW**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID **LCS-63442**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **LCSW**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.342	20	100.0	0	104	85	115				

Sample ID **N025503-001B-MS**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	115.624	20	100.0	14.99	101	75	125				

Sample ID **N025503-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	118.402	20	100.0	14.99	103	75	125	115.6	2.37	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-63441	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	PBW	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-63441	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	LCSW	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749591

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.725	20	100.0	0	108	85	115				

Sample ID	N025503-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749598

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	116.624	20	100.0	21.62	95.0	75	125				

Sample ID	N025503-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749599

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	112.787	20	100.0	21.62	91.2	75	125	116.6	3.35	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-001

Client Sample ID: MW-913-Q317
Collection Date: 8/17/2017 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 01:19 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 01:19 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:19 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 01:19 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 01:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 01:47 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 01:47 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:47 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 01:47 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 01:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-004

Client Sample ID: C-CON-S-Q317
Collection Date: 8/17/2017 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 01:52 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 01:52 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:52 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 01:52 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 01:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-005

Client Sample ID: C-MAR-D-Q317
Collection Date: 8/17/2017 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 02:09 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:09 PM
Manganese	3.7	0.056	0.50		µg/L	1	8/28/2017 02:09 PM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 02:09 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-006

Client Sample ID: C-MAR-S-Q317
Collection Date: 8/17/2017 8:35:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_170828B** QC Batch: **63427** PrepDate **8/19/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 02:15 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:15 PM
Manganese	5.5	0.056	0.50		µg/L	1	8/28/2017 02:15 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:15 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**		Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:20 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:20 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:20 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:20 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:26 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:26 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:26 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:26 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:31 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:31 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:31 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:31 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:37 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:37 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:37 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:37 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:42 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:42 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:42 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:42 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_170828B** QC Batch: **63427** PrepDate **8/19/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:48 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:48 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:48 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:48 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:53 PM
Barium	100	0.070	1.0		µg/L	1	8/28/2017 02:53 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:53 PM
Molybdenum	4.3	0.039	0.50		µg/L	1	8/28/2017 02:53 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-014

Client Sample ID: R-19-Q317
Collection Date: 8/17/2017 9:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 02:59 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:59 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:59 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:59 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 03:15 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 03:15 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 03:15 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 03:15 PM
Selenium	1.7	0.028	0.50		µg/L	1	8/28/2017 03:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63427**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **PBW**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63427**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **LCSW**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.573	0.10	10.00	0	95.7	85	115				
Barium	9.410	1.0	10.00	0	94.1	85	115				
Manganese	95.663	0.50	100.0	0	95.7	85	115				
Molybdenum	9.181	0.50	10.00	0	91.8	85	115				
Selenium	9.534	0.50	10.00	0	95.3	85	115				

Sample ID **N025503-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.223	0.10	10.00	2.107	91.2	75	125				
Barium	114.110	1.0	10.00	106.5	76.1	75	125				
Manganese	88.643	0.50	100.0	0	88.6	75	125				
Molybdenum	14.156	0.50	10.00	4.450	97.1	75	125				
Selenium	10.122	0.50	10.00	1.495	86.3	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N025503-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **8/19/2017** RunNo: **117521**
Client ID: **ZZZZZZ** Batch ID: **63427** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **8/28/2017** SeqNo: **2749059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.419	0.10	10.00	2.107	93.1	75	125	11.22	1.73	20	
Barium	115.352	1.0	10.00	106.5	88.6	75	125	114.1	1.08	20	
Manganese	88.112	0.50	100.0	0	88.1	75	125	88.64	0.601	20	
Molybdenum	14.396	0.50	10.00	4.450	99.5	75	125	14.16	1.68	20	
Selenium	10.612	0.50	10.00	1.495	91.2	75	125	10.12	4.73	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ☒; 2. Headspace; 3. Container Intact ☒; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		Sample Temp: 4.5, 4.8, 5.1°C
Signature: Date: 8/17/17	Sampled By: Nara Tep	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier: ASSET
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		Tracking No.:
Project Name: PG&E Topock - RMP	Signature: Date: 8/17/17		
Project Number: RC000753.0801			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N025503 - 01	• MW-913-Q317	8/17/17	0950		X		X		X	X		X	X		X	X	E	3	P	BNS	
		~~AB1-Q317~~					X											E	1	P	BN	
		AB2-Q317					X											E	1	P	BN	
	- 02	• AB3-Q317	8/17/17	1400			X											E	1	P	BN	

Reliquished by (Signature and Printed Name): Nara Tep Date/Time: 8/17/17 1530
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @1530
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @1807
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @1807

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#
Submitted By: Nana Tey	Phone: Fax:	Phone: 949-727-1400, ext 200 Fax:
Title: Sample Tech	Phone: 916-786-3302	
Signature: Date: 8/17/17	Sampled By: Nana Tey	
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	
Project Name: PG&E Topock - RMP	Signature: Date: 8/17/17	
Project Number: RC000753.0801		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	X	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	X	
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 4.5, 4.8, 5.7°C		

Courier: ASSET
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-BNS-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~					
2	N025503 - 03	C-CON-D-Q317	8/17/17	1030		X		X		X	X		X	X		X	X	E	3	P	BNS	
3	- 04	C-CON-S-Q317	8/17/17	1045		X		X		X	X		X	X		X	X	E	3	P	BNS	
4		~~C-I-3-D-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~E~~	~~3~~	~~P~~	~~BNS~~	
5		~~MW-910-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~E~~	~~3~~	~~P~~	~~BNS~~	
6		~~C-I-3-S-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~E~~	~~3~~	~~P~~	~~BNS~~	
7	- 05	C-MAR-D-Q317	8/17/17	0810		X		X		X	X		X	X		X	X	E	3	P	BNS	
8	- 06	C-MAR-S-Q317	8/17/17	0835		X		X		X	X		X	X		X	X	E	3	P	BNS	
9	- 07	C-NR1-D-Q317	8/17/17	1115		X		X		X	X		X	X		X	X	E	3	P	BNS	
10	- 08	C-NR1-S-Q317	8/17/17	1145		X		X		X	X		X	X		X	X	E	3	P	BNS	
11	- 09	C-NR3-D-Q317	8/17/17	1215		X		X		X	X		X	X		X	X	E	3	P	BNS	
12	- 10	C-NR3-S-Q317	8/17/17	1235		X		X		X	X		X	X		X	X	E	3	P	BNS	
13	- 11	MW-911-Q317	8/17/17	1340		X		X		X	X		X	X		X	X	E	3	P	BNS	
14	- 12	C-NR4-D-Q317	8/17/17	1310		X		X		X	X		X	X		X	X	E	3	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nana Tey	8/17/17 1530		8/17/17 @ 1530
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
	8/17/17 @ 1807		8/17/17 @ 1807
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
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7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200 Fax:
Title: sample tech	Phone: 916-786-3302 Fax:	
Signature: Date: 8/17/17	Sampled By: Nara Tep	
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*	
Project Name: PG&E Topock - RMP	Signature: Date: 8/17/17	
Project Number: RC000753.0801		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE				
Geotracker		RWQCB	✓	1. Chilled	X	
Labspec		CalTrans		2. Headspace		X
Others	✓	LEVEL III		3. Container Intact	X	
Specify: RWQCB		LEVEL IV		4. Seal Present		
Global ID:		Regulatory		5. IR number	2	
		Specify State:		6. Method of Cooling: ICE		

Sample Temp: 4.5, 4.8, 5.7

Courier: ASET

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025503 - 13	C-NR4-S-Q317	8/17/17	1330		X		X		X	X		X	X			X	X	E	7/8	P	BNS
2		~~C-R22A-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
3		~~C-R22A-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
4		~~C-R27-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
5		~~C-R27-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
		~~C-TAZ-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
7		~~MW-912-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
8		~~C-TAZ-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
9	- 14	R-19-Q317	8/17/17	0915		X		X		X	X		X	X			X	X	E	7/6	P	BNS
10		~~R-28-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
11		~~R63-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
12	- 15	RRB-Q317	8/17/17	0940		X		X		X	X		X	X			X	X	E	7/8	P	BNS
13		~~SW1-Q317~~				X		X					X	X					E	7	P	BNS
14		~~SW2-Q317~~				X		X					X	X					E	7	P	BNS

Reliquished by (Signature and Printed Name): Nara Tep Date/Time: 8/17/17 1530
Received by (Signature and Printed Name): Date/Time: 8/17/17 @ 1530
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @ 1807
Received by (Signature and Printed Name): Date/Time: 8/17/17 @ 1807
Reliquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

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	D	= 3 Workdays
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9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/17/2017	Workorder:	N025503
Rep sample Temp (Deg C):	4.5,4.8,5.7	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past HT upon receipt.

For:

Checklist Completed By: MBC 8/29/2017

Reviewed By: 8/30/2017

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-001A	MW-913-Q317	8/17/2017 9:50:00 AM	8/31/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-001B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-001C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-001D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-001E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-002A	AB3-Q317	8/17/2017 2:00:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-003A	C-CON-D-Q317	8/17/2017 10:30:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-003B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-003C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-003D	C-CON-D-Q317	8/17/2017 10:30:00 AM	8/31/2017	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-003E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-004A	C-CON-S-Q317	8/17/2017 10:45:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-004B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-004C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-004D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-004E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-005A	C-MAR-D-Q317	8/17/2017 8:10:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-005B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-005B	C-MAR-D-Q317	8/17/2017 8:10:00 AM	8/31/2017	Groundwater	EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-005C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-005D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-005E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-006A	C-MAR-S-Q317	8/17/2017 8:35:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-006B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-006C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-006D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-006E	C-MAR-S-Q317	8/17/2017 8:35:00 AM	8/31/2017	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-007A	C-NR1-D-Q317	8/17/2017 11:15:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-007B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-007C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-007D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-007E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-008A	C-NR1-S-Q317	8/17/2017 11:45:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-008B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-008C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-008C	C-NR1-S-Q317	8/17/2017 11:45:00 AM	8/31/2017	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-008D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-008E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-009A	C-NR3-D-Q317	8/17/2017 12:15:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-009B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-009C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-009D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-009E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-010A	C-NR3-S-Q317	8/17/2017 12:35:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-010B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-010B	C-NR3-S-Q317	8/17/2017 12:35:00 PM	8/31/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-010C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-010D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-010E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-011A	MW-911-Q317	8/17/2017 1:40:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-011B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-011C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-011D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-011D	MW-911-Q317	8/17/2017 1:40:00 PM	8/31/2017	Groundwater		Total Suspended Solids Prep	☐	☐	☐	WW
N025503-011E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-012A	C-NR4-D-Q317	8/17/2017 1:10:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-012B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-012C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-012D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-012E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-013A	C-NR4-S-Q317	8/17/2017 1:30:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-013B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-013C	C-NR4-S-Q317	8/17/2017 1:30:00 PM	8/31/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-013D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-013E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-014A	R-19-Q317	8/17/2017 9:15:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-014B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-014C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-014D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-014E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-015A	RRB-Q317	8/17/2017 9:40:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-015B	RRB-Q317	8/17/2017 9:40:00 AM	8/31/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-015C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-015D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-015E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-016A	FOLDER	8/31/2017	8/31/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/31/2017		Folder	Folder	☐	☐	☐	LAB
			8/31/2017			QA Review	☐	☐	☐	LAB
			8/31/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - RMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N025503

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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August 31, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N025503

RE: PG&E Topock - RMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on August 17, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *31-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025503-001A	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001B	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001C	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001D	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-001E	MW-913-Q317	Groundwater	8/17/2017 9:50:00 AM	8/17/2017	8/31/2017
N025503-002A	AB3-Q317	Groundwater	8/17/2017 2:00:00 PM	8/17/2017	8/31/2017
N025503-003A	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003B	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003C	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003D	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-003E	C-CON-D-Q317	Groundwater	8/17/2017 10:30:00 AM	8/17/2017	8/31/2017
N025503-004A	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004B	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004C	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004D	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-004E	C-CON-S-Q317	Groundwater	8/17/2017 10:45:00 AM	8/17/2017	8/31/2017
N025503-005A	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005B	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005C	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005D	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-005E	C-MAR-D-Q317	Groundwater	8/17/2017 8:10:00 AM	8/17/2017	8/31/2017
N025503-006A	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006B	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006C	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006D	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-006E	C-MAR-S-Q317	Groundwater	8/17/2017 8:35:00 AM	8/17/2017	8/31/2017
N025503-007A	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-007B	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-007C	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025503-007D	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-007E	C-NR1-D-Q317	Groundwater	8/17/2017 11:15:00 AM	8/17/2017	8/31/2017
N025503-008A	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008B	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008C	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008D	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-008E	C-NR1-S-Q317	Groundwater	8/17/2017 11:45:00 AM	8/17/2017	8/31/2017
N025503-009A	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009B	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009C	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009D	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-009E	C-NR3-D-Q317	Groundwater	8/17/2017 12:15:00 PM	8/17/2017	8/31/2017
N025503-010A	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010B	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010C	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010D	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-010E	C-NR3-S-Q317	Groundwater	8/17/2017 12:35:00 PM	8/17/2017	8/31/2017
N025503-011A	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011B	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011C	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011D	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-011E	MW-911-Q317	Groundwater	8/17/2017 1:40:00 PM	8/17/2017	8/31/2017
N025503-012A	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012B	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012C	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012D	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-012E	C-NR4-D-Q317	Groundwater	8/17/2017 1:10:00 PM	8/17/2017	8/31/2017
N025503-013A	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-013B	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-013C	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N025503
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025503-013D	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-013E	C-NR4-S-Q317	Groundwater	8/17/2017 1:30:00 PM	8/17/2017	8/31/2017
N025503-014A	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014B	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014C	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014D	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-014E	R-19-Q317	Groundwater	8/17/2017 9:15:00 AM	8/17/2017	8/31/2017
N025503-015A	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015B	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015C	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015D	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017
N025503-015E	RRB-Q317	Groundwater	8/17/2017 9:40:00 AM	8/17/2017	8/31/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-004

Client Sample ID: C-CON-S-Q317
Collection Date: 8/17/2017 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-005

Client Sample ID: C-MAR-D-Q317
Collection Date: 8/17/2017 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	970	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	970	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	960	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170818G**	QC Batch: **R117213**			PrepDate			Analyst: **LR**
Specific Conductance	970	0.10	0.10		umhos/cm	1	8/18/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N025503-001DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	117213
Client ID:	ZZZZZZ	Batch ID:	R117213	TestNo:	EPA 120.1			Analysis Date:	8/18/2017	SeqNo:	2739898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	967.000	0.10						962.0	0.518	10	

Sample ID	N025503-012DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	117213
Client ID:	ZZZZZZ	Batch ID:	R117213	TestNo:	EPA 120.1			Analysis Date:	8/18/2017	SeqNo:	2739910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	953.000	0.10						949.0	0.421	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-001

Client Sample ID: MW-913-Q317
Collection Date: 8/17/2017 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-003

Client Sample ID: C-CON-D-Q317
Collection Date: 8/17/2017 10:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-004

Client Sample ID: C-CON-S-Q317
Collection Date: 8/17/2017 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-005

Client Sample ID: C-MAR-D-Q317
Collection Date: 8/17/2017 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-006

Client Sample ID: C-MAR-S-Q317
Collection Date: 8/17/2017 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	22	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-012

Client Sample ID: C-NR4-D-Q317
Collection Date: 8/17/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.0	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-014

Client Sample ID: R-19-Q317
Collection Date: 8/17/2017 9:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-015

Client Sample ID: RRB-Q317
Collection Date: 8/17/2017 9:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170818E**	QC Batch: **R117211**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	8/18/2017 01:45 PM
Temp. at time of pH Analysis	23	0.10	0.10	H	°C	1	8/18/2017 01:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025503-001DDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117211**
Client ID: **ZZZZZZ**	Batch ID: **R117211**	TestNo: **SM4500-H+B**		Analysis Date: **8/18/2017**	SeqNo: **2739500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.040	0.10						8.040	0	10	H
Temp. at time of pH Analysis	22.300	0.10						22.50	0.893	10	H

Sample ID **N025505-001BDUP**	SampType: **DUP**	TestCode: **150.1_4500H**	Units: **pH Units**	Prep Date:	RunNo: **117211**
Client ID: **ZZZZZZ**	Batch ID: **R117211**	TestNo: **SM4500-H+B**		Analysis Date: **8/18/2017**	SeqNo: **2739517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.520	0.10						7.510	0.133	10	H
Temp. at time of pH Analysis	23.500	0.10						23.50	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B** QC Batch: **63446**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	13	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B** QC Batch: **63446**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	14	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821B**	QC Batch: **63446**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821C**	QC Batch: **63447**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821C**	QC Batch: **63447**				PrepDate	**8/21/2017**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821C** QC Batch: **63447**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_170821C** QC Batch: **63447**					PrepDate **8/21/2017**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	10	10		mg/L	1	8/21/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-63446	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117304
Client ID:	LCSW	Batch ID:	63446	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	933.000	10	1000	0	93.3	80	120				

Sample ID	MB-63446	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117304
Client ID:	PBW	Batch ID:	63446	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740826

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N025503-001DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117304
Client ID:	ZZZZZZ	Batch ID:	63446	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740828

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID	LCS-63447	SampType:	LCS	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117305
Client ID:	LCSW	Batch ID:	63447	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740848

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	948.000	10	1000	0	94.8	80	120				

Sample ID	MB-63447	SampType:	MBLK	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117305
Client ID:	PBW	Batch ID:	63447	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740849

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID	N025503-012DDUP	SampType:	DUP	TestCode:	160.2_2540D	Units:	mg/L	Prep Date:	8/21/2017	RunNo:	117305
Client ID:	ZZZZZZ	Batch ID:	63447	TestNo:	SM2540D			Analysis Date:	8/21/2017	SeqNo:	2740851

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A**	QC Batch: **R117236**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 11:25 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63427**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	AB3-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 2:00:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A**	QC Batch: **R117236**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 11:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 12:21 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 12:40 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A **EPA 6020**							
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 01:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170821A** QC Batch: **R117277**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/21/2017 10:01 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 01:30 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 02:28 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 02:48 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 03:07 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 03:26 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A**	QC Batch: **R117236**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 03:45 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A**	QC Batch: **63427**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 04:23 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 04:42 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A** QC Batch: **R117236**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 05:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_170828A** QC Batch: **63427**				PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 02:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170818A**	QC Batch: **R117236**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	8/18/2017 05:20 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_170828A**	QC Batch: **63427**			PrepDate	**8/19/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	8/28/2017 03:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R117236**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID:	**PBW**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R117236**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID:	**LCSW**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.788	0.20	5.000	0	95.8	90	110				

Sample ID	**N025503-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID:	**ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738004**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.036	0.20	1.000	0	104	90	110				

Sample ID	**N025503-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID:	**ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.980	0.20	1.000	0	98.0	90	110				

Sample ID	**N025503-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID:	**ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0.05440	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N025503-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0.06330	99.7	90	110				

Sample ID **N025503-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0.05340	98.8	90	110				

Sample ID **N025503-006ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.054	0.20						0.05340	0	20	

Sample ID **N025503-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.012	0.20	1.000	0	101	90	110	1.036	2.26	20	

Sample ID **N025503-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738020**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0.04490	98.4	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025503-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738022

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0.04750	101	90	110				

Sample ID	N025503-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738024

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.064	0.20	1.000	0.05430	101	90	110				

Sample ID	N025503-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738026

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.072	0.20	1.000	0.04490	103	90	110				

Sample ID	N025503-011AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738028

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110				

Sample ID	N025503-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738032

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.040	0.20	1.000	0.04900	99.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025503-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.006	0.20	1.000	0	101	90	110				

Sample ID	N025503-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738036

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.044	0.20	1.000	0.04930	99.5	90	110				

Sample ID	N025503-015AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117236
Client ID:	ZZZZZZ	Batch ID:	R117236	TestNo:	EPA 218.6			Analysis Date:	8/18/2017	SeqNo:	2738038

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.050	0.20	1.000	0.08060	97.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R117277	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117277
Client ID:	PBW	Batch ID:	R117277	TestNo:	EPA 218.6			Analysis Date:	8/21/2017	SeqNo:	2739871

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R117277	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117277
Client ID:	LCSW	Batch ID:	R117277	TestNo:	EPA 218.6			Analysis Date:	8/21/2017	SeqNo:	2739872

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.886	0.20	5.000	0	97.7	90	110				

Sample ID	N025503-005ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117277
Client ID:	ZZZZZZ	Batch ID:	R117277	TestNo:	EPA 218.6			Analysis Date:	8/21/2017	SeqNo:	2739874

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.051	0.20						0.05160	0	20	

Sample ID	N025503-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117277
Client ID:	ZZZZZZ	Batch ID:	R117277	TestNo:	EPA 218.6			Analysis Date:	8/21/2017	SeqNo:	2739875

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.084	0.20	1.000	0.05160	103	90	110				

Sample ID	N025503-005AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117277
Client ID:	ZZZZZZ	Batch ID:	R117277	TestNo:	EPA 218.6			Analysis Date:	8/21/2017	SeqNo:	2739876

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.072	0.20	1.000	0.05160	102	90	110	1.084	1.13	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63427	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	PBW	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748973

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63427	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	LCSW	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748974

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.396	1.0	10.00	0	94.0	85	115				

Sample ID	N025503-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748978

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.903	1.0	10.00	0	89.0	75	125				

Sample ID	N025503-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748979

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.876	1.0	10.00	0	88.8	75	125	8.903	0.309	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.42	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:30:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 10:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.43	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170823B**	QC Batch: **R117445**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/23/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.42	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.41	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 1:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.39	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.40	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 9:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_170825A**	QC Batch: **R117446**		PrepDate				Analyst: **RB**
Nitrate/Nitrite as N	0.44	0.022	0.050		mg/L	1	8/25/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R117445	**MBLK**	**4500N03F_W**	**mg/L**		**117445**
Client ID: **PBW**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R117445	**LCS**	**4500N03F_W**	**mg/L**		**117445**
Client ID: **LCSW**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-002EDUP	**DUP**	**4500N03F_W**	**mg/L**		**117445**
Client ID: **ZZZZZZ**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.390	0.050						0.3978	1.98	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-002EMS	**MS**	**4500N03F_W**	**mg/L**		**117445**
Client ID: **ZZZZZZ**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.839	0.050	0.5000	0.3978	88.1	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N025493-002EMSD	**MSD**	**4500N03F_W**	**mg/L**		**117445**
Client ID: **ZZZZZZ**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.844	0.050	0.5000	0.3978	89.2	75	125	0.8385	0.630	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117446	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	PBW	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R117446	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	LCSW	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746280

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.514	0.050	0.5000	0	103	85	115				

Sample ID	N025503-010EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	ZZZZZZ	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746282

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.415	0.050						0.4078	1.70	20	

Sample ID	N025503-010EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	ZZZZZZ	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746283

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.858	0.050	0.5000	0.4078	90.0	75	125				

Sample ID	N025503-010EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117446
Client ID:	ZZZZZZ	Batch ID:	R117446	TestNo:	SM4500-NO3			Analysis Date:	8/25/2017	SeqNo:	2746284

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.903	0.050	0.5000	0.4078	99.0	75	125	0.8579	5.09	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-001

Client Sample ID: MW-913-Q317
Collection Date: 8/17/2017 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 03:00 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	22	1.8	20		ug/L	1	8/29/2017 09:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-003

Client Sample ID: C-CON-D-Q317
Collection Date: 8/17/2017 10:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 03:23 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	140	1.8	20		ug/L	1	8/29/2017 01:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-004

Client Sample ID: C-CON-S-Q317
Collection Date: 8/17/2017 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 07:49 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	40	1.8	20		ug/L	1	8/29/2017 01:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-005

Client Sample ID: C-MAR-D-Q317
Collection Date: 8/17/2017 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 07:54 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	440	1.8	20		ug/L	1	8/29/2017 01:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-006

Client Sample ID: C-MAR-S-Q317
Collection Date: 8/17/2017 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 07:58 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	380	1.8	20		ug/L	1	8/29/2017 01:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:03 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	40	1.8	20		ug/L	1	8/29/2017 02:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-008

Client Sample ID: C-NR1-S-Q317
Collection Date: 8/17/2017 11:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:08 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	49	1.8	20		ug/L	1	8/29/2017 02:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-009

Client Sample ID: C-NR3-D-Q317
Collection Date: 8/17/2017 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:13 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	70	1.8	20		ug/L	1	8/29/2017 02:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-010

Client Sample ID: C-NR3-S-Q317
Collection Date: 8/17/2017 12:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:17 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	29	1.8	20		ug/L	1	8/29/2017 02:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:22 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	120	1.8	20		ug/L	1	8/29/2017 02:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-012

Client Sample ID: C-NR4-D-Q317
Collection Date: 8/17/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:27 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	43	1.8	20		ug/L	1	8/29/2017 02:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-013

Client Sample ID: C-NR4-S-Q317
Collection Date: 8/17/2017 1:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 04:21 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	59	1.8	20		ug/L	1	8/29/2017 02:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-014

Client Sample ID: R-19-Q317
Collection Date: 8/17/2017 9:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:31 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	120	1.8	20		ug/L	1	8/29/2017 02:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-015

Client Sample ID: RRB-Q317
Collection Date: 8/17/2017 9:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828G**	QC Batch: **63442**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	ND	1.8	20		ug/L	1	8/29/2017 08:45 AM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170828H**	QC Batch: **63441**			PrepDate	**8/19/2017**		Analyst: **CEI**
Iron	33	1.8	20		ug/L	1	8/29/2017 02:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **MB-63442**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **PBW**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID **LCS-63442**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **LCSW**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.342	20	100.0	0	104	85	115				

Sample ID **N025503-001B-MS**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	115.624	20	100.0	14.99	101	75	125				

Sample ID **N025503-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **8/19/2017**	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	118.402	20	100.0	14.99	103	75	125	115.6	2.37	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-63441	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	PBW	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID	LCS-63441	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	LCSW	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749591

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	107.725	20	100.0	0	108	85	115				

Sample ID	N025503-001C-MS	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749598

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	116.624	20	100.0	21.62	95.0	75	125				

Sample ID	N025503-001C-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	8/19/2017	RunNo:	117505
Client ID:	ZZZZZZ	Batch ID:	63441	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	8/29/2017	SeqNo:	2749599

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	112.787	20	100.0	21.62	91.2	75	125	116.6	3.35	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-001

Client Sample ID: MW-913-Q317
Collection Date: 8/17/2017 9:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 01:19 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 01:19 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:19 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 01:19 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 01:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-003

Client Sample ID: C-CON-D-Q317
Collection Date: 8/17/2017 10:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 01:47 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 01:47 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:47 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 01:47 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 01:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-004

Client Sample ID: C-CON-S-Q317
Collection Date: 8/17/2017 10:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 01:52 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 01:52 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 01:52 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 01:52 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 01:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-005

Client Sample ID: C-MAR-D-Q317
Collection Date: 8/17/2017 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 02:09 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:09 PM
Manganese	3.7	0.056	0.50		µg/L	1	8/28/2017 02:09 PM
Molybdenum	4.6	0.039	0.50		µg/L	1	8/28/2017 02:09 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *31-Aug-17*

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-006

Client Sample ID: C-MAR-S-Q317
Collection Date: 8/17/2017 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 02:15 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:15 PM
Manganese	5.5	0.056	0.50		µg/L	1	8/28/2017 02:15 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:15 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-007

Client Sample ID: C-NR1-D-Q317
Collection Date: 8/17/2017 11:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:20 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:20 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:20 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:20 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *31-Aug-17*

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 11:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**		Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:26 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:26 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:26 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:26 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q317
Lab Order:	N025503	**Collection Date:**	8/17/2017 12:15:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N025503-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**				PrepDate	**8/19/2017**	Analyst: **CEI**
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:31 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:31 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:31 PM
Molybdenum	4.4	0.039	0.50		µg/L	1	8/28/2017 02:31 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-010

Client Sample ID: C-NR3-S-Q317
Collection Date: 8/17/2017 12:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:37 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:37 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:37 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:37 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-011

Client Sample ID: MW-911-Q317
Collection Date: 8/17/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:42 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:42 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:42 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:42 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-012

Client Sample ID: C-NR4-D-Q317
Collection Date: 8/17/2017 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:48 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:48 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:48 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:48 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-013

Client Sample ID: C-NR4-S-Q317
Collection Date: 8/17/2017 1:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 02:53 PM
Barium	100	0.070	1.0		µg/L	1	8/28/2017 02:53 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:53 PM
Molybdenum	4.3	0.039	0.50		µg/L	1	8/28/2017 02:53 PM
Selenium	1.4	0.028	0.50		µg/L	1	8/28/2017 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-014

Client Sample ID: R-19-Q317
Collection Date: 8/17/2017 9:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	8/28/2017 02:59 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 02:59 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 02:59 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 02:59 PM
Selenium	1.5	0.028	0.50		µg/L	1	8/28/2017 02:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025503
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N025503-015

Client Sample ID: RRB-Q317
Collection Date: 8/17/2017 9:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_170828B**	QC Batch: **63427**			PrepDate	**8/19/2017**	Analyst: **CEI**	
Arsenic	2.1	0.025	0.10		µg/L	1	8/28/2017 03:15 PM
Barium	110	0.070	1.0		µg/L	1	8/28/2017 03:15 PM
Manganese	ND	0.056	0.50		µg/L	1	8/28/2017 03:15 PM
Molybdenum	4.5	0.039	0.50		µg/L	1	8/28/2017 03:15 PM
Selenium	1.7	0.028	0.50		µg/L	1	8/28/2017 03:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63427**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **PBW**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63427**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **LCSW**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.573	0.10	10.00	0	95.7	85	115				
Barium	9.410	1.0	10.00	0	94.1	85	115				
Manganese	95.663	0.50	100.0	0	95.7	85	115				
Molybdenum	9.181	0.50	10.00	0	91.8	85	115				
Selenium	9.534	0.50	10.00	0	95.3	85	115				

Sample ID **N025503-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **8/19/2017**	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**	SeqNo: **2749058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.223	0.10	10.00	2.107	91.2	75	125				
Barium	114.110	1.0	10.00	106.5	76.1	75	125				
Manganese	88.643	0.50	100.0	0	88.6	75	125				
Molybdenum	14.156	0.50	10.00	4.450	97.1	75	125				
Selenium	10.122	0.50	10.00	1.495	86.3	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N025503-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	8/19/2017	RunNo:	117521
Client ID:	ZZZZZZ	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2749059

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.419	0.10	10.00	2.107	93.1	75	125	11.22	1.73	20	
Barium	115.352	1.0	10.00	106.5	88.6	75	125	114.1	1.08	20	
Manganese	88.112	0.50	100.0	0	88.1	75	125	88.64	0.601	20	
Molybdenum	14.396	0.50	10.00	4.450	99.5	75	125	14.16	1.68	20	
Selenium	10.612	0.50	10.00	1.495	91.2	75	125	10.12	4.73	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

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P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y N; 1. Chilled X; 2. Headspace; 3. Container Intact X; 4. Seal Present; 5. IR number 7; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		Sample Temp: 4.5, 4.8, 5.1°C
Signature: Date: 8/17/17	Sampled By: Nara Tep	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier: ASSET
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		Tracking No.:
Project Name: PG&E Topock - RMP	Signature: Date: 8/17/17		
Project Number: RC000753.0801			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N025503 - 01	• MW-913-Q317	8/17/17	0950		X		X		X	X		X	X		X	X	E	3	P	BNS	
		~~AB1-Q317~~					X											E	1	P	BN	
		AB2-Q317					X											E	1	P	BN	
	- 02	• AB3-Q317	8/17/17	1400			X											E	1	P	BN	

Reliquished by (Signature and Printed Name): Nara Tep Date/Time: 8/17/17 1530
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @1530
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @1807
Reliquished by (Signature and Printed Name): Date/Time: 8/17/17 @1807

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#
Submitted By: Nana Tey	Phone: Fax:	Phone: 949-727-1400, ext 200 Fax:
Title: Sample Tech	Phone: 916-786-3302 Fax:	
Signature: Date: 8/17/17	Sampled By: Nana Tey	
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	
Project Name: PG&E Topock - RMP	Signature: Date: 8/17/17	
Project Number: RC000753.0801		

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	X	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	X	
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 4.5, 4.8, 5.7°C		

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

Courier: ASSET
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-BNS-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~					
2	N025503 - 03	C-CON-D-Q317	8/17/17	1030		X		X		X	X		X	X		X	X	E	3	P	BNS	
3	- 04	C-CON-S-Q317	8/17/17	1045		X		X		X	X		X	X		X	X	E	3	P	BNS	
4		~~C-I-3-D-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~E~~	~~3~~	~~P~~	~~BNS~~	
5		~~MW-910-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~E~~	~~3~~	~~P~~	~~BNS~~	
6		~~C-I-3-S-Q317~~				~~X~~		~~X~~		~~X~~	~~X~~		~~X~~	~~X~~		~~X~~	~~X~~	~~E~~	~~3~~	~~P~~	~~BNS~~	
7	- 05	C-MAR-D-Q317	8/17/17	0810		X		X		X	X		X	X		X	X	E	3	P	BNS	
8	- 06	C-MAR-S-Q317	8/17/17	0835		X		X		X	X		X	X		X	X	E	3	P	BNS	
9	- 07	C-NR1-D-Q317	8/17/17	1115		X		X		X	X		X	X		X	X	E	3	P	BNS	
10	- 08	C-NR1-S-Q317	8/17/17	1145		X		X		X	X		X	X		X	X	E	3	P	BNS	
11	- 09	C-NR3-D-Q317	8/17/17	1215		X		X		X	X		X	X		X	X	E	3	P	BNS	
12	- 10	C-NR3-S-Q317	8/17/17	1235		X		X		X	X		X	X		X	X	E	3	P	BNS	
13	- 11	MW-911-Q317	8/17/17	1340		X		X		X	X		X	X		X	X	E	3	P	BNS	
14	- 12	C-NR4-D-Q317	8/17/17	1310		X		X		X	X		X	X		X	X	E	3	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nana Tey	8/17/17 1530		8/17/17 @ 1530
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
	8/17/17 @ 1807		8/17/17 @ 1807
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

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1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200 Fax:
Title: sample tech	Phone: 916-786-3302 Fax:	
Signature: Date: 8/17/17	Sampled By: Nara Tep	
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*	
Project Name: PG&E Topock - RMP	Signature: Date: 8/17/17	
Project Number: RC000753.0801		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE				
Geotracker		RWQCB	✓	1. Chilled	X	
Labspec		CalTrans		2. Headspace		X
Others	✓	LEVEL III		3. Container Intact	X	
Specify: RWQCB		LEVEL IV		4. Seal Present		
Global ID:		Regulatory		5. IR number	2	
		Specify State:		6. Method of Cooling: ICE		

Sample Temp: 4.5, 4.8, 5.7

Courier: ASET

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 3x250 mL poly	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 3x500mL poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Br, Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025503 - 13	C-NR4-S-Q317	8/17/17	1330		X		X		X	X		X	X			X	X	E	7/8	P	BNS
2		~~C-R22A-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
3		~~C-R22A-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
4		~~C-R27-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
5		~~C-R27-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
		~~C-TAZ-D-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
7		~~MW-912-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
8		~~C-TAZ-S-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
9	- 14	R-19-Q317	8/17/17	0915		X		X		X	X		X	X			X	X	E	7/6	P	BNS
10		~~R-28-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
11		~~R63-Q317~~				X		X		X	X		X	X			X	X	E	9	P	BNS
12	- 15	RRB-Q317	8/17/17	0940		X		X		X	X		X	X			X	X	E	7/8	P	BNS
13		~~SW1-Q317~~				X		X					X	X					E	7	P	BNS
14		~~SW2-Q317~~				X		X					X	X					E	7	P	BNS

Relinquished by (Signature and Printed Name): Nara Tep Date/Time: 8/17/17 1530
Received by (Signature and Printed Name): Date/Time: 8/17/17 @ 1530
Relinquished by (Signature and Printed Name): Date/Time: 8/17/17 @ 1807
Received by (Signature and Printed Name): Date/Time: 8/17/17 @ 1807
Relinquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/17/2017	Workorder:	N025503
Rep sample Temp (Deg C):	4.5,4.8,5.7	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past HT upon receipt.

For:

Checklist Completed By: MBC 8/29/2017

Reviewed By: 8/30/2017

ASSET Laboratories

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-001A	MW-913-Q317	8/17/2017 9:50:00 AM	8/31/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-001B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-001C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-001D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-001E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-002A	AB3-Q317	8/17/2017 2:00:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-003A	C-CON-D-Q317	8/17/2017 10:30:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-003B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-003C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-003D	C-CON-D-Q317	8/17/2017 10:30:00 AM	8/31/2017	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-003E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-004A	C-CON-S-Q317	8/17/2017 10:45:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-004B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-004C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-004D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-004E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-005A	C-MAR-D-Q317	8/17/2017 8:10:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-005B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-005B	C-MAR-D-Q317	8/17/2017 8:10:00 AM	8/31/2017	Groundwater	EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-005C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-005D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-005E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-006A	C-MAR-S-Q317	8/17/2017 8:35:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-006B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-006C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-006D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-006E	C-MAR-S-Q317	8/17/2017 8:35:00 AM	8/31/2017	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-007A	C-NR1-D-Q317	8/17/2017 11:15:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-007B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-007C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-007D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-007E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-008A	C-NR1-S-Q317	8/17/2017 11:45:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-008B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-008C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-008C	C-NR1-S-Q317	8/17/2017 11:45:00 AM	8/31/2017	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-008D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-008E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-009A	C-NR3-D-Q317	8/17/2017 12:15:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-009B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-009C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-009D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-009E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-010A	C-NR3-S-Q317	8/17/2017 12:35:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-010B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-010B	C-NR3-S-Q317	8/17/2017 12:35:00 PM	8/31/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-010C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-010D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-010E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-011A	MW-911-Q317	8/17/2017 1:40:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-011B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-011C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-011D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-011D	MW-911-Q317	8/17/2017 1:40:00 PM	8/31/2017	Groundwater		Total Suspended Solids Prep	☐	☐	☐	WW
N025503-011E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-012A	C-NR4-D-Q317	8/17/2017 1:10:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-012B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-012C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-012D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-012E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-013A	C-NR4-S-Q317	8/17/2017 1:30:00 PM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-013B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-013C	C-NR4-S-Q317	8/17/2017 1:30:00 PM	8/31/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-013D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-013E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-014A	R-19-Q317	8/17/2017 9:15:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025503-014B			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-014C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-014D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-014E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-015A	RRB-Q317	8/17/2017 9:40:00 AM	8/31/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

WORK ORDER Summary

30-Aug-17

WorkOrder: N025503

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 8/17/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025503-015B	RRB-Q317	8/17/2017 9:40:00 AM	8/31/2017	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			8/31/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025503-015C			8/31/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			8/31/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N025503-015D			8/31/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			8/31/2017		SM4500-H+B	pH	☐	☐	☐	WW
			8/31/2017		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			8/31/2017			Total Suspended Solids Prep	☐	☐	☐	WW
N025503-015E			8/31/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025503-016A	FOLDER	8/31/2017	8/31/2017		EDD	RWQCB	☐	☐	☐	LAB
			8/31/2017		Folder	Folder	☐	☐	☐	LAB
			8/31/2017			QA Review	☐	☐	☐	LAB
			8/31/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N025503**

NAME	TEST METHOD
Claire Ignacio	EPA 6010B, EPA 6020
Ryan Balilu	SM 4500-NO3F
Ria Abes	EPA 218.6
Lilia Ramit	SM 2540D, SM 4500-H+B, EPA 120.1

intentionally left blank



9/1/17

for

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117213 **Analyst:** LSR

ASSET #: N025503 **Date Analyzed:** 8/18/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/25/2017

2nd Level Reviewer: [illegible] 8/31/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 11/7/17 1105

Analyst: LRR

cont

	Standard	Std ID	Reading	Comments
	9.25 mS/cm	CAW-170620B	9.42 mS/cm @ 22.9°C	% Rec: (90-110%)
	1411	170329B	1410 @ 22.9°C	
	10000	170329A	10010 @ 22.9°C	
	99582	170329C	10020 @ 22.8°C	

	Sample ID	Matrix	Reading	Comments
1	N025493-001D	H2O	977 @ 22.5°C	
2	11D DUP		972 @ 22.3°C	
3	12D		989 @ 22.0°C	
4	13D		984 @ 22.2°C	
5	14D		982 @ 22.4°C	
6	17D		953 @ 22.3°C	
7				
8				
9	14B mS/cm	CAW-170725F	1473 @ 22.9°C	
10	10000	170726E	10130 @ 23.2°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 8/15/17 1445

Analyst: LRR

	Standard	Std ID	Reading	Comments
	9.25 mS/cm	CAW-170620B	9.51 mS/cm @ 25.3°C	% Rec: (90-110%)
	1411	170329B	1420 @ 25.3°C	
	~~10000~~ 9976	~~170329~~ 170615H	9950 @ 25.4°C	
	99582	170329C	99400 @ 25.5°C	

	Sample ID	Matrix	Reading	Comments
1	N025503-001D	H2O	962 @ 25.5°C	
2	1DDUP		967 @ 25.3°C	
3	2D		965 @ 25.1°C	1413 - CAW-170725F
4	4D		953 @ 25.0°C	= 1424 @ 25.3°C
5	5D		973 @ 24.8°C	10,000 - CAW-170726E
6	6D		967 @ 24.7°C	= 10280 @ 25.3°C
7	7D		965 @ 24.8°C	
8	8D		954 @ 24.7°C	Julia Ramit
9	9D		946 @ 24.6°C	8/25/2017
10	10D		947 @ 24.5°C	
Dup	11D		954 @ 24.5°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

Date: 8/18/17 1445
Analyst: UR CONT

Standard	Std ID	Reading	Comments
9.28 mS/cm	CINV-170620B	9.57 mS/cm @ 25.3°C	% Rec: (90-110%)
1411	170329B	1420 @ 25.3°C	
9976	170615H	9950 @ 25.4°C	
99582	170329C	99400 @ 25.5°C	

	Sample ID	Matrix	Reading	Comments
1	N025500-012D	H_2O	949 @25.2°C	
2	12D DUP		953 @24.7°C	
3	13D		961 @25.1°C	
4	14D		959 @25.2°C	
5	15D		969 @25.2°C	
6	N025502-002B		372 @25.4°C	
7	2B DUP		373 @25.4°C	
8	N025505-001B		1139 @25.6°C	Julia Ramit
9	N025506-001B		1092 @25.4°C	8/25/2017
10	N025507-001B		1001 @25.5°C	
Dup	N025508-001B		1126 @25.5°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: CONT'D
Analyst:

Standard	Std ID	Reading	Comments
1413 mS/cm	CINV-170125F	1461 @25.8°C	% Rec: (90-110%)
10000	170125E	10250 @25.9°C	

	Sample ID	Matrix	Reading	Comments
1	N025509-001B	H_2O	1101 @25.7°C	
2	1B DUP		1105 @25.6°C	
3	N025510-001B		1138 @25.8°C	
4	N025511-001B		1172 @25.6°C	
5	N025512-001B		1141 @25.8°C	
6	N025513-001B		1372 @25.4°C	
7	N025514-001B		0.76 @25.6°C	
8				
9				
10	1413 mS/cm	CINV-170125F	1468 @25.9°C	
Dup	10000	170125E	10340 @26.0°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117211 **Instrument ID:** pH meter

ASSET #: N025503 **Analyst:** LSR

Date Analyzed: 18-Aug

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?	X					
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 8/23/2017

2nd Level Reviewer 8/31/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 8/18/17 1130
Analyst: KR

Standard	Std ID	pH	Comments
Buffer 7	CRM-170125C	7.01 @23.4°C	SLOPE: 98.0%
Buffer 4	170125B	4.03 @23.0°C	
Buffer 10	170323A	10.03 @23.1°C	

	Sample ID	Matrix	pH	Comments
1	N025204-002A	Soil	3.96 @22.6°C	
2	N025495-001A	"	11.85 @22.6°C	
3	" DUP	"	11.91 @22.7°C	
4	" LCS	"	11.96 @22.8°C	
5	N025519-001A	"	0.91 @23.3°C	
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7) 4, 10	CRM-170510A	6.99 @24.8°C	Accept: +/-0.1 pH units from expected value

(Circle one)

Date: 8/18/17 1345
Analyst: KR

Standard	Std ID	pH	Comments
Buffer 7	CRM-170125C	7.01 @23.4°C	SLOPE: 98.0%
Buffer 4	170125B	4.03 @ 23.0°C	
Buffer 10	170323A	10.03 @ 23.1°C	

	Sample ID	Matrix	pH	Comments
1	N025503-001D	H2O	8.04 @ 22.5°C	
2	10DUP	"	8.04 @ 22.3°C	
3	3D	"	8.05 @ 21.8°C	
4	4D	"	8.07 @ 22.0°C	
5	5D	"	8.03 @ 22.2°C	
6	6D	"	8.13 @ 22.2°C	
7	7D	"	8.08 @ 22.7°C	Julia Ramit
8	8D	"	8.07 @ 22.2°C	8/23/2017
9	9D	"	8.03 @ 22.1°C	
10	10D	"	8.07 @ 22.2°C	
Dup	11D	"	8.05 @ 22.3°C	Accept: 10% water, 20% soil
	Buffer (7) 4, 10	CRM-170510A	6.95 @ 24.7°C	Accept: +/-0.1 pH units from expected value

(Circle one)

Logbook #11

Date: 8/18/17 1345

Analyst: KR CONT

Standard	Std ID	pH	Comments
Buffer 7	GW-170725C	7.01 @ 23.4°C	SLOPE: 98.0%
Buffer 4	170725B	4.07 @ 23.0°C	
Buffer 10	170731A	10.03 @ 23.1°C	

	Sample ID	Matrix	pH	Comments
1	NO25503-012D	H2O	8.01 @ 22.6°C	
2	13D		8.09 @ 22.7°C	
3	14D		8.19 @ 22.7°C	
4	15D		8.15 @ 22.7°C	
5	NO25505-001B		7.51 @ 23.5°C	
6	1B DUP		7.52 @ 23.5°C	
7	NO25506-001B	WB	7.95 @ 23.2°C	Julia Ramit
8	NO25507-001B		8.24 @ 23.0°C	8/23/2017
9	NO25508-001B		7.88 @ 23.1°C	
10	NO25509-001B		7.97 @ 23.5°C	
Dup	NO25510-001B		7.98 @ 23.4°C	Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	GW-170510A	7.04 @ 24.0°C	Accept: +/-0.1 pH units from expected value

Date:

Analyst:

Standard	Std ID	pH	Comments
Buffer 7			
Buffer 4	CONT		
Buffer 10			

	Sample ID	Matrix	pH	Comments
1	NO25511-001B	H2O	7.99 @ 23.5°C	
2	NO25512-001B		8.04 @ 23.4°C	
3	NO25513-001B		8.19 @ 23.4°C	
4	NO25514-001B		6.02 @ 22.9°C	
5	NO25502-002B	WB 7.62	7.48 @ 24.8°C	
6	2D DUP		7.64 @ 24.8°C	
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	GW-170510A	7.07 @ 25.2°C	Accept: +/-0.1 pH units from expected value

Logbook #11

SM 2540D

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63446/63447 **Analyst:** LSR

ASSET #: N025503 **Date Analyzed:** 8/21/2017

Method: EPA 160.2

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 8/23/2017

2nd Level Reviewer: 8/31/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540D
TEST NAME: Total Non-Filterable Residue
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N025503-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.3835- 1.3830) *1000000}{100}$$
$$= 5 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND

Julia Ramit 8/23/2017

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/21/2017 7:58:30 A**
Prep End Date: **8/21/2017 2:45:00 P**
Reviewed/ Date: 8/31/2017
Initials/ Date: Lilia Ramit 8/23/2017
Prep Batch **63446** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63446	Water		100	☐	0	0	100	1.000		
MB-63446	Water		100	☐	0	0	100	1.000		
N025503-001D	Groundwater		100	☐	0	0	100	1.000		
N025503-001D-DU	Groundwater		100	☐	0	0	100	1.000		
N025503-003D	Groundwater		100	☐	0	0	100	1.000		
N025503-004D	Groundwater		100	☐	0	0	100	1.000		
N025503-005D	Groundwater		100	☐	0	0	100	1.000		
N025503-006D	Groundwater		100	☐	0	0	100	1.000		
N025503-007D	Groundwater		100	☐	0	0	100	1.000		
N025503-008D	Groundwater		100	☐	0	0	100	1.000		
N025503-009D	Groundwater		100	☐	0	0	100	1.000		
N025503-010D	Groundwater		100	☐	0	0	100	1.000		
N025503-011D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9131	Glass Fiber Filter, 47mm
9132	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170821C	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/21/2017 7:58:30 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63446** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63446	Water IWTI7082-1C		100	☐	0	0	100	1.000		
MB-63446	Water		100	☐	0	0	100	1.000		
N025503-001D	Groundwater		100	☐	0	0	100	1.000		
N025503-001D-DU	Groundwater		100	☐	0	0	100	1.000		
N025503-003D	Groundwater		100	☐	0	0	100	1.000		
N025503-004D	Groundwater		100	☐	0	0	100	1.000		
N025503-005D	Groundwater		100	☐	0	0	100	1.000		
N025503-006D	Groundwater		100	☐	0	0	100	1.000		
N025503-007D	Groundwater		100	☐	0	0	100	1.000		
N025503-008D	Groundwater		100	☐	0	0	100	1.000		
N025503-009D	Groundwater		100	☐	0	0	100	1.000		
N025503-010D	Groundwater		100	☐	0	0	100	1.000		
N025503-011D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9131
9132

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/21/2017 7:58:33 A**
Prep End Date: **8/21/2017 2:45:00 P**

Reviewed/ Date: 8/31/2017

Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63447** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63447	Water		100	☐	0	0	100	1.000		
MB-63447	Water		100	☐	0	0	100	1.000		
N025503-012D	Groundwater		100	☐	0	0	100	1.000		
N025503-012D-DU	Groundwater		100	☐	0	0	100	1.000		
N025503-013D	Groundwater		100	☐	0	0	100	1.000		
N025503-014D	Groundwater		100	☐	0	0	100	1.000		
N025503-015D	Groundwater		100	☐	0	0	100	1.000		
N025546-001A	Water		30	☐	0	0	100	3.333		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9132	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170821C	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/21/2017 7:58:33 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 8/23/2017

Prep Batch **63447** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63447	Water		100	☐	0	0	100	1.000		
MB-63447	Water		100	☐	0	0	100	1.000		
N025503-012D	Groundwater		100	☐	0	0	100	1.000		
N025503-012D-DU	Groundwater		100	☐	0	0	100	1.000		
N025503-013D	Groundwater		100	☐	0	0	100	1.000		
N025503-014D	Groundwater		100	☐	0	0	100	1.000		
N025503-015D	Groundwater		100	☐	0	0	100	1.000		
N025546-001A	Water		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9137

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST (TSS) TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8/21/17 758 12	MB 63446	100	1.3874 1.3872	1.3877 1.3875	
13	LCS 63446	100	1.3766 1.3764	1.4699 1.4697	
1	NO25523-10 ID	100	1.3829 1.3830	1.3834 1.3835	
2	ID DUP	100	1.3806 1.3806	1.3809 1.3811	
3	3D	100	1.3812 1.3815	1.3821 1.3822	
4	4D	100	1.3726 1.3725	1.3730 1.3732	
5	5D	100	1.3804 1.3805	1.3819 1.3818	
6	6D	100	1.3692 1.3697	1.3708 1.3706	
7	7D	100	1.3792 1.3791	1.3796 1.3793	
8	8D	100	1.3742 1.3745	1.3753 1.3750	

Sukra Ramit 8/23/2017 ASSET Laboratories Logbook#7

SOLIDS RAW DATA

TEST : TSS/TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8/21/17 758 9	N025503-009D	100	1.3655 1.3652	1.3654 1.3653	
10	10D	100	1.3651 1.3651	1.3653 1.3654	
11	11D	100	1.3727 1.3724	1.3726 1.3726	
14	MB G3447	100	1.3609 1.3608	1.3608 1.3608	
15	LCS G3447	100	1.3607 1.3605	1.4554 1.4553	
16	N025503-012D	100	1.3628 1.3627	1.3628 1.3628	
17	12D DUP	100	1.3915 1.3915	1.3917 1.3917	
18	13D	100	1.3772 1.3770	1.3774 1.3773	
19	14D	100	1.3872 1.3871	1.3872 1.3872	
20	15D	100	1.3695 1.3694	1.3697 1.3697	

ASSET Laboratories Logbook#7

Julia Ramit 8/23/2017

SOLIDS RAW DATA

TEST : TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
8/21/17	NOR5346-001A	30	1.3601 1.3602	1.3703 1.3702	

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/21/2017							
MB-63446	100	1.3876	1.3875	-1.0000	1.00	-1	MBLK
LCS-63446	100	1.3764	1.4697	933.0000	1.00	933	LCS
N025503-001D	100	1.383	1.3835	5.0000	1.00	5	SAMP
N025503-001DDUP	100	1.3806	1.3811	5.0000	1.00	5	DUP
N025503-003D	100	1.3815	1.3822	7.0000	1.00	7	SAMP
N025503-004D	100	1.3725	1.3732	7.0000	1.00	7	SAMP
N025503-005D	100	1.3805	1.3818	13.0000	1.00	13	SAMP
N025503-006D	100	1.3692	1.3706	14.0000	1.00	14	SAMP
N025503-007D	100	1.3791	1.3793	2.0000	1.00	2	SAMP
N025503-008D	100	1.3745	1.375	5.0000	1.00	5	SAMP
N025503-009D	100	1.3652	1.3653	1.0000	1.00	1	SAMP
N025503-010D	100	1.3651	1.3654	3.0000	1.00	3	SAMP
N025503-011D	100	1.3724	1.3726	2.0000	1.00	2	SAMP

Julia Ramit 8/23/2017

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
8/21/2017							
MB-63447	100	1.3608	1.3608	0.0000	1.00	0	MBLK
LCS-63447	100	1.3605	1.4553	948.0000	1.00	948	LCS
N025503-012D	100	1.3627	1.3628	1.0000	1.00	1	SAMP
N025503-012DDUP	100	1.3915	1.3917	2.0000	1.00	2	DUP
N025503-013D	100	1.377	1.3773	3.0000	1.00	3	SAMP
N025503-014D	100	1.3871	1.3872	1.0000	1.00	1	SAMP
N025503-015D	100	1.3694	1.3697	3.0000	1.00	3	SAMP
N025546-001A	30	1.36	1.3702	102.0000	3.33	340	SAMP

Julia Ramit 8/23/2017

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R117236
ASSET #: N025503

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 8/18/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 8/22/2017

2nd Level Reviewer 8/31/2017 Date: _____

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R117277
ASSET #: N025503

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 8/21/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba Date: 8/22/2017

2nd Level Reviewer: 8/31/2017 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N025503-003A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0544 * 1$$

$$Cr^{+6}, \mu g/L = 0.05$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

rba 8/22/2017

ANALYSIS RUN LOG

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	08/02/17 1:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/02/17 1:49 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	08/02/17 1:58 PM	Reported
13	MB-R116844	MBLK	1	Hexavalent Chromium	08/02/17 2:08 PM	Reported
14	LCS-R116844	LCS	1	Hexavalent Chromium	08/02/17 2:17 PM	Reported
15	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 2:28 PM	Reported
16	N025284-001BMS	MS	100	Hexavalent Chromium	08/02/17 2:39 PM	Reported
17	N025284-001BMSD	MSD	100	Hexavalent Chromium	08/02/17 2:48 PM	Reported
18	N025284-002C	SAMP	1	Hexavalent Chromium	08/02/17 2:57 PM	Reported
19	N025284-002CMS	MS	1	Hexavalent Chromium	08/02/17 3:07 PM	Reported
20	N025254-009A	SAMP	1	Hexavalent Chromium	08/02/17 3:16 PM	Not Reported
21	N025254-010A	SAMP	1	Hexavalent Chromium	08/02/17 3:26 PM	Reported
22	N025284-002C	SAMP	5	Hexavalent Chromium	08/02/17 3:35 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	08/02/17 3:45 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	08/02/17 3:54 PM	Reported
25	N025284-002CMS	MS	5	Hexavalent Chromium	08/02/17 4:04 PM	Reported
26	N025254-001A	SAMP	1	Hexavalent Chromium	08/02/17 4:13 PM	Reported
27	N025254-002A	SAMP	5	Hexavalent Chromium	08/02/17 4:23 PM	Not Reported
28	N025254-003A	SAMP	50	Hexavalent Chromium	08/02/17 4:32 PM	Reported
29	N025254-004A	SAMP	1	Hexavalent Chromium	08/02/17 4:42 PM	Reported
30	N025254-005A	SAMP	1	Hexavalent Chromium	08/02/17 4:51 PM	Reported
31	N025254-006A	SAMP	1	Hexavalent Chromium	08/02/17 5:00 PM	Reported
32	N025254-007A	SAMP	200	Hexavalent Chromium	08/02/17 5:10 PM	Reported
33	N025254-008A	SAMP	1	Hexavalent Chromium	08/02/17 5:19 PM	Reported
34	N025254-011A	SAMP	1	Hexavalent Chromium	08/02/17 5:29 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	08/02/17 5:38 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	08/02/17 5:48 PM	Reported
37	N025254-012A	SAMP	1	Hexavalent Chromium	08/02/17 5:57 PM	Reported
38	N025254-013A	SAMP	1	Hexavalent Chromium	08/02/17 6:07 PM	Reported
39	N025254-014A	SAMP	5	Hexavalent Chromium	08/02/17 6:16 PM	Not Reported
40	N025254-015A	SAMP	1	Hexavalent Chromium	08/02/17 6:26 PM	Reported
41	N025254-016A	SAMP	1	Hexavalent Chromium	08/02/17 6:35 PM	Reported
42	N025254-017A	SAMP	5	Hexavalent Chromium	08/02/17 6:45 PM	Reported

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025254-018A	SAMP	5	Hexavalent Chromium	08/02/17 6:54 PM	Reported
44	N025254-009A	SAMP	10	Hexavalent Chromium	08/02/17 7:04 PM	Reported
45	N025254-009ADUP	DUP	10	Hexavalent Chromium	08/02/17 7:13 PM	Reported
46	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 7:22 PM	Not Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	08/02/17 7:32 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	08/02/17 7:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170802A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Aug/17 20:12:12**
No. of Injections:	**51**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		08/02/2017 13:37	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		08/02/2017 13:49	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		08/02/2017 13:58	Finished	ICB R170724A
13	MB-H2O,MBLK,1	14	1000	Unknown		08/02/2017 14:08	Finished	MB R170724A
14	LCS-H2O,LCS,1	15	1000	Unknown		08/02/2017 14:17	Finished	LCS, IWST-170622D
15	N025284-001B,SAMF	1	1000	Unknown		08/02/2017 14:28	Finished	SAMP,0.1> 10mL
16	N025284-001BMS,MS	2	1000	Unknown		08/02/2017 14:39	Finished	MS (5ppb), IWST-170622D,0.1
17	N025284-001BMSD,M	3	1000	Unknown		08/02/2017 14:48	Finished	MSD (5ppb), IWST-170622D,0
18	N025284-002C,SAMF	4	1000	Unknown		08/02/2017 14:57	Finished	SAMP, 10mL
19	N025284-002CMS,MS	5	1000	Unknown		08/02/2017 15:07	Finished	MS (1ppb), IWST-170622D,10
20	N025254-009A,SAMF	6	1000	Unknown		08/02/2017 15:16	Finished	SAMP, 10mL
21	N025254-010A,SAMF	7	1000	Unknown		08/02/2017 15:26	Finished	SAMP, 10mL
22	N025284-002C,SAMF	8	1000	Unknown		08/02/2017 15:35	Finished	SAMP,2> 10mL
23	CCV-1,CCV1,1,	9	1000	Unknown		08/02/2017 15:45	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	10	1000	Unknown		08/02/2017 15:54	Finished	CCB R170724A
25	N025284-002CMS,MS	11	1000	Unknown		08/02/2017 16:04	Finished	SAMP, 2>10mL
26	N025254-001A,SAMF	12	1000	Unknown		08/02/2017 16:13	Finished	SAMP, 10mL
27	N025254-002A,SAMF	13	1000	Unknown		08/02/2017 16:23	Finished	SAMP, 2>10mL
28	N025254-003A,SAMF	14	1000	Unknown		08/02/2017 16:32	Finished	SAMP, 0.2>10mL
29	N025254-004A,SAMF	15	1000	Unknown		08/02/2017 16:42	Finished	SAMP, 10mL
30	N025254-005A,SAMF	16	1000	Unknown		08/02/2017 16:51	Finished	SAMP, 10mL
31	N025254-006A,SAMF	17	1000	Unknown		08/02/2017 17:00	Finished	SAMP, 10mL
32	N025254-007A,SAMF	18	1000	Unknown		08/02/2017 17:10	Finished	SAMP, 0.05>10mL
33	N025254-008A,SAMF	19	1000	Unknown		08/02/2017 17:19	Finished	SAMP, 10mL
34	N025254-011A,SAMF	20	1000	Unknown		08/02/2017 17:29	Finished	DUP, 10mL
35	CCV-2,CCV,1,	21	1000	Unknown		08/02/2017 17:38	Finished	CCV @5ppb, IWST-170622D
36	CCB-2,CCB,1,	22	1000	Unknown		08/02/2017 17:48	Finished	CCB R170724A
37	N025254-012A,SAMF	23	1000	Unknown		08/02/2017 17:57	Finished	SAMP, 10mL
38	N025254-013A,SAMF	24	1000	Unknown		08/02/2017 18:07	Finished	SAMP, 10mL
39	N025254-014A,SAMF	25	1000	Unknown		08/02/2017 18:16	Finished	SAMP, 2>10mL
40	N025254-015A,SAMF	26	1000	Unknown		08/02/2017 18:26	Finished	SAMP, 10mL
41	N025254-016A,SAMF	27	1000	Unknown		08/02/2017 18:35	Finished	SAMP, 10mL
42	N025254-017A,SAMF	28	1000	Unknown		08/02/2017 18:45	Finished	SAMP,2> 10mL
43	N025254-018A,SAMF	29	1000	Unknown		08/02/2017 18:54	Finished	SAMP,2> 10mL
44	N025254-009A,SAMF	30	1000	Unknown		08/02/2017 19:04	Finished	SAMP, 1>10mL
45	N025254-009ADUP,D	31	1000	Unknown		08/02/2017 19:13	Finished	DUP, 1>10mL
46	N025284-001B,SAMF	32	1000	Unknown		08/02/2017 19:22	Finished	SAMP,0.1> 10mL
47	CCV-3,CCV1,1,	33	1000	Unknown		08/02/2017 19:32	Finished	CCV @10ppb, IWST-170622C
48	CCB-3,CCB,1,	34	1000	Unknown		08/02/2017 19:41	Finished	CCB R170724A
49	SHUTDOWN	35	1000	Unknown		08/02/2017 19:51	Finished	
50	Eluent: R170801A	36	1000	Unknown		n.a.	Finished	Eluent
51	PCR: R170801B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170818A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/18/17 9:36 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/18/17 9:46 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/18/17 9:56 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/18/17 10:05 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/18/17 10:15 AM	Reported
15	MB-R117236	MBLK	1	Hexavalent Chromium	08/18/17 10:24 AM	Reported
16	LCS-R117236	LCS	1	Hexavalent Chromium	08/18/17 10:34 AM	Reported
17	N025412-003A	SAMP	5	Hexavalent Chromium	08/18/17 10:45 AM	Not Reported
18	N025412-003AMS	MS	5	Hexavalent Chromium	08/18/17 10:56 AM	Not Reported
19	N025412-004A	SAMP	5	Hexavalent Chromium	08/18/17 11:06 AM	Not Reported
20	N025412-004AMS	MS	5	Hexavalent Chromium	08/18/17 11:15 AM	Not Reported
21	N025503-001A	SAMP	1	Hexavalent Chromium	08/18/17 11:25 AM	Reported
22	N025503-001AMS	MS	1	Hexavalent Chromium	08/18/17 11:34 AM	Reported
23	N025503-002A	SAMP	1	Hexavalent Chromium	08/18/17 11:44 AM	Reported
24	N025503-002AMS	MS	1	Hexavalent Chromium	08/18/17 11:53 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	08/18/17 12:02 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	08/18/17 12:12 PM	Reported
27	N025503-003A	SAMP	1	Hexavalent Chromium	08/18/17 12:21 PM	Reported
28	N025503-003AMS	MS	1	Hexavalent Chromium	08/18/17 12:31 PM	Reported
29	N025503-004A	SAMP	1	Hexavalent Chromium	08/18/17 12:40 PM	Reported
30	N025503-004AMS	MS	1	Hexavalent Chromium	08/18/17 12:50 PM	Reported
31	N025503-005A	SAMP	1	Hexavalent Chromium	08/18/17 1:11 PM	Not Reported
32	N025503-005AMS	MS	1	Hexavalent Chromium	08/18/17 1:21 PM	Not Reported
33	N025503-006A	SAMP	1	Hexavalent Chromium	08/18/17 1:30 PM	Reported
34	N025503-006AMS	MS	1	Hexavalent Chromium	08/18/17 1:40 PM	Reported
35	N025503-006ADUP	DUP	1	Hexavalent Chromium	08/18/17 1:49 PM	Reported
36	N025503-001AMSD	MSD	1	Hexavalent Chromium	08/18/17 1:59 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	08/18/17 2:08 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	08/18/17 2:18 PM	Reported
39	N025503-007A	SAMP	1	Hexavalent Chromium	08/18/17 2:28 PM	Reported
40	N025503-007AMS	MS	1	Hexavalent Chromium	08/18/17 2:39 PM	Reported
41	N025503-008A	SAMP	1	Hexavalent Chromium	08/18/17 2:48 PM	Reported
42	N025503-008AMS	MS	1	Hexavalent Chromium	08/18/17 2:58 PM	Reported

INJECTION LOG: 170818A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025503-009A	SAMP	1	Hexavalent Chromium	08/18/17 3:07 PM	Reported
44	N025503-009AMS	MS	1	Hexavalent Chromium	08/18/17 3:17 PM	Reported
45	N025503-010A	SAMP	1	Hexavalent Chromium	08/18/17 3:26 PM	Reported
46	N025503-010AMS	MS	1	Hexavalent Chromium	08/18/17 3:36 PM	Reported
47	N025503-011A	SAMP	1	Hexavalent Chromium	08/18/17 3:45 PM	Reported
48	N025503-011AMS	MS	1	Hexavalent Chromium	08/18/17 3:55 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	08/18/17 4:04 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	08/18/17 4:14 PM	Reported
51	N025503-012A	SAMP	1	Hexavalent Chromium	08/18/17 4:23 PM	Reported
52	N025503-012AMS	MS	1	Hexavalent Chromium	08/18/17 4:32 PM	Reported
53	N025503-013A	SAMP	1	Hexavalent Chromium	08/18/17 4:42 PM	Reported
54	N025503-013AMS	MS	1	Hexavalent Chromium	08/18/17 4:51 PM	Reported
55	N025503-014A	SAMP	1	Hexavalent Chromium	08/18/17 5:01 PM	Reported
56	N025503-014AMS	MS	1	Hexavalent Chromium	08/18/17 5:10 PM	Reported
57	N025503-015A	SAMP	1	Hexavalent Chromium	08/18/17 5:20 PM	Reported
58	N025503-015AMS	MS	1	Hexavalent Chromium	08/18/17 5:29 PM	Reported
59	CCV-5	CCV	1	Hexavalent Chromium	08/18/17 5:39 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	08/18/17 5:48 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170818A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**18/Aug/17 18:18:57**
No. of Injections:	**63**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/18/2017 09:36	Finished	
11	BLANK	2	1000	Unknown		08/18/2017 09:46	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/18/2017 09:56	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/18/2017 10:05	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/18/2017 10:15	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/18/2017 10:24	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/18/2017 10:34	Finished	LCS, IWST-170622D
17	N025412-003A,SAMF	9	1000	Unknown		08/18/2017 10:45	Finished	SAMP,2>10mL
18	N025412-003AMS,MS	10	1000	Unknown		08/18/2017 10:56	Finished	MS (5ppb), IWST-170622D,2>1
19	N025412-004A,SAMF	11	1000	Unknown		08/18/2017 11:06	Finished	SAMP,2>10mL
20	N025412-004AMS,MS	12	1000	Unknown		08/18/2017 11:15	Finished	MS (5ppb), IWST-170622D,2>1
21	N025503-001A,SAMF	13	1000	Unknown		08/18/2017 11:25	Finished	SAMP,10mL
22	N025503-001AMS,MS	14	1000	Unknown		08/18/2017 11:34	Finished	MS (1ppb), IWST-170622D,10
23	N025503-002A,SAMF	15	1000	Unknown		08/18/2017 11:44	Finished	SAMP,10mL
24	N025503-002AMS,MS	16	1000	Unknown		08/18/2017 11:53	Finished	MS (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	17	1000	Unknown		08/18/2017 12:02	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	18	1000	Unknown		08/18/2017 12:12	Finished	CCB R170724A
27	N025503-003A,SAMF	19	1000	Unknown		08/18/2017 12:21	Finished	SAMP,10mL
28	N025503-003AMS,MS	20	1000	Unknown		08/18/2017 12:31	Finished	MS (1ppb), IWST-170622D,10
29	N025503-004A,SAMF	21	1000	Unknown		08/18/2017 12:40	Finished	SAMP,10mL
30	N025503-004AMS,MS	22	1000	Unknown		08/18/2017 12:50	Finished	MS (1ppb), IWST-170622D,10
31	N025503-005A,SAMF	23	1000	Unknown		08/18/2017 13:11	Finished	SAMP,10mL
32	N025503-005AMS,MS	24	1000	Unknown		08/18/2017 13:21	Finished	MS (1ppb), IWST-170622D,10
33	N025503-006A,SAMF	25	1000	Unknown		08/18/2017 13:30	Finished	SAMP,10mL
34	N025503-006AMS,MS	26	1000	Unknown		08/18/2017 13:40	Finished	MS (1ppb), IWST-170622D,10
35	N025503-006ADUP,D	27	1000	Unknown		08/18/2017 13:49	Finished	DUP,10mL
36	N025503-001AMSD,M	28	1000	Unknown		08/18/2017 13:59	Finished	MSD (1ppb), IWST-170622D,1
37	CCV-3,CCV,1,	29	1000	Unknown		08/18/2017 14:08	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		08/18/2017 14:18	Finished	CCB R170815A
39	N025503-007A,SAMF	1	1000	Unknown		08/18/2017 14:28	Finished	SAMP,10mL
40	N025503-007AMS,MS	2	1000	Unknown		08/18/2017 14:39	Finished	MS (1ppb), IWST-170622D,10
41	N025503-008A,SAMF	3	1000	Unknown		08/18/2017 14:48	Finished	SAMP,10mL
42	N025503-008AMS,MS	4	1000	Unknown		08/18/2017 14:58	Finished	MS (1ppb), IWST-170622D,10
43	N025503-009A,SAMF	5	1000	Unknown		08/18/2017 15:07	Finished	SAMP,10mL
44	N025503-009AMS,MS	6	1000	Unknown		08/18/2017 15:17	Finished	MS (1ppb), IWST-170622D,10
45	N025503-010A,SAMF	7	1000	Unknown		08/18/2017 15:26	Finished	SAMP,10mL
46	N025503-010AMS,MS	8	1000	Unknown		08/18/2017 15:36	Finished	MS (1ppb), IWST-170622D,10
47	N025503-011A,SAMF	9	1000	Unknown		08/18/2017 15:45	Finished	SAMP,10mL
48	N025503-011AMS,MS	10	1000	Unknown		08/18/2017 15:55	Finished	MS (1ppb), IWST-170622D,10
49	CCV-4,CCV1,1,	11	1000	Unknown		08/18/2017 16:04	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	12	1000	Unknown		08/18/2017 16:14	Finished	CCB R170815A
51	N025503-012A,SAMF	13	1000	Unknown		08/18/2017 16:23	Finished	SAMP,10mL
52	N025503-012AMS,MS	14	1000	Unknown		08/18/2017 16:32	Finished	MS (1ppb), IWST-170622D,10
53	N025503-013A,SAMF	15	1000	Unknown		08/18/2017 16:42	Finished	SAMP,10mL
54	N025503-013AMS,MS	16	1000	Unknown		08/18/2017 16:51	Finished	MS (1ppb), IWST-170622D,10
55	N025503-014A,SAMF	17	1000	Unknown		08/18/2017 17:01	Finished	SAMP,10mL
56	N025503-014AMS,MS	18	1000	Unknown		08/18/2017 17:10	Finished	MS (1ppb), IWST-170622D,10
57	N025503-015A,SAMF	19	1000	Unknown		08/18/2017 17:20	Finished	SAMP,10mL
58	N025503-015AMS,MS	20	1000	Unknown		08/18/2017 17:29	Finished	MS (1ppb), IWST-170622D,10
59	CCV-5,CCV,1,	21	1000	Unknown		08/18/2017 17:39	Finished	CCV @5ppb, IWST-170622C
60	CCB-5,CCB,1,	22	1000	Unknown		08/18/2017 17:48	Finished	CCB R170724A

61	SHUTDOWN	23	1000	Unknown		08/18/2017 17:58	Finished	
62	Eluent: R170818A	24	1000	Unknown		n.a.	Finished	Eluent
63	PCR: R170818B	25	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170821A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/21/17 8:30 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/21/17 8:41 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/21/17 8:50 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/21/17 9:00 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/21/17 9:09 AM	Reported
15	MB-R116277	MBLK	1	Hexavalent Chromium	08/21/17 9:19 AM	Reported
16	LCS-R116277	LCS	1	Hexavalent Chromium	08/21/17 9:28 AM	Reported
17	N025503-005A	SAMP	1	Hexavalent Chromium	08/21/17 10:01 AM	Reported
18	N025503-005ADUP	DUP	1	Hexavalent Chromium	08/21/17 10:13 AM	Reported
19	N025503-005AMS	MS	1	Hexavalent Chromium	08/21/17 10:22 AM	Reported
20	N025503-005AMSD	MSD	1	Hexavalent Chromium	08/21/17 10:32 AM	Reported
21	CCV-2	CCV1	1	Hexavalent Chromium	08/21/17 10:59 AM	Reported
22	CCB-2	CCB	1	Hexavalent Chromium	08/21/17 11:10 AM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170821A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**21/Aug/17 11:40:49**
No. of Injections:	**25**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/21/2017 08:30	Finished	
11	BLANK	2	1000	Unknown		08/21/2017 08:41	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/21/2017 08:50	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/21/2017 09:00	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/21/2017 09:09	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/21/2017 09:19	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/21/2017 09:28	Finished	LCS, IWST-170622D
17	N025503-005A,SAMP	9	1000	Unknown		08/21/2017 10:01	Finished	SAMP,10mL
18	N025503-005ADUP,D	10	1000	Unknown		08/21/2017 10:13	Finished	DUP,10mL
19	N025503-005AMS,MS	11	1000	Unknown		08/21/2017 10:22	Finished	MS (1ppb), IWST-170622D,10
20	N025503-005AMSD,M	12	1000	Unknown		08/21/2017 10:32	Finished	MSD (1ppb), IWST-170622D,1(
21	CCV-2,CCV1,1,	14	1000	Unknown		08/21/2017 10:59	Finished	CCV @10ppb, IWST-170622C
22	CCB-2,CCB,1,	15	1000	Unknown		08/21/2017 11:10	Finished	CCB R170724A
23	SHUTDOWN	16	1000	Unknown		08/21/2017 11:19	Finished	
24	Eluent: R170818A	17	1000	Unknown		n.a.	Finished	Eluent
25	PCR: R170818B	18	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/18/17
Time Prepared: 1025H
Prepared By: MBA

Slope: 98.07
pH 4: 4.03 @ 23.0°C
7: 7.01 @ 23.4°C
10: 10.03 @ 23.1°C
6.98 @ 24.1°C

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M170818A
NH4OH + NH4SO4 buffer: M170724A / M170815A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025503-001A	9.46	-	~250 mL	~250 mL		1|1 M170724A
2)	1A	9.40	-				2|1
3)	1A	9.42	-				3|1
4)	2A	9.57	-				1|2 M170818A
5)	2A	9.43	-				1|3
6)	3A	9.42	-				2|3
7)	3A	9.35	-				3|3 M170724A
8)	4A	9.30	-				1|4
9)	4A	9.35	-				2|4
10)	4A	9.33	-				3|4
11)	5A	9.34	-				1|5
12)	5A	9.31	-				2|5
13)	5A	9.36	-				3|5
14)	6A	9.47	-				1|6
15)	6A	9.42	-				2|3
	6A	9.36	-				3|6

Sample Preparation

Date Prepared: 8/18/17
Time Prepared: 1025H
Prepared By: MBA

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M170818A
NH4OH + NH4SO4 buffer: M170724A / M170815A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025503-7A	9.49	-	~250mL	~250 mL		1|7 M170724A
2)	7A	9.55	-				2|7
3)	7A	9.39	-				3|7
4)	8A	9.48	-				1|8
5)	8A	9.42	-				2|8
6)	8A	9.50	-				3|8
7)	9A	9.43	-				1|9
8)	9A	9.40	-				2|9
9)	9A	9.39	-				3|9
10)	10A	9.48	-				1|10
11)	10A	9.52	-				2|10
12)	10A	9.37	-				3|10
13)	11A	9.51	-				1|11
14)	11A	9.55	-				2|11
15)	11A	9.48	-				3|11
	12A	9.43	-				1|12

Logbook No. 13

jrba 8/22/2017

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/18/17
Time Prepared: 1025H
Prepared By: MBA

Reagent ID:
Sulfuric Acid: 9240
Diphenylcarbazide: CINN-170620A
NH4OH + NH4SO4 eluent: M70818A
NH4OH + NH4SO4 buffer: M70724A / M70815A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	NU25503-12A	9.40	-	~250ml	~200ml		2/12 M70724A
2)	12A	9.46	-				3/12
3)	13A	9.62	-				1/13
4)	13A	9.60	-				2/13 M70815A
5)	13A	9.55	-				3/13 M70724A
6)	14A	9.53	-				1/14
7)	14A	9.47	-				2/14
8)	14A	9.47	-				3/14
9)	15A	9.33	-				1/15
10)	15A	9.32	-				2/15
11)	15A	9.33	-				3/15
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared:
Time Prepared:
Prepared By:

Reagent ID:
Sulfuric Acid:
Diphenylcarbazide:
NH4OH + NH4SO4 eluent:
NH4OH + NH4SO4 buffer:

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)							
2)							
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

rba 8/22/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 8/2/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0548	0.2647	1.3349	2.6448	3.9550	5.2553	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST160817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ICV**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2737995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2737996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCV**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2737998**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.902	0.20	5.000	0	98.0	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2737999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.203	0.20	0.2000	0	102	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738007**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.743	0.20	10.00	0	97.4	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCV**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.902	0.20	5.000	0	98.0	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ZZZZZZ**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.809	0.20	10.00	0	98.1	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCV**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.863	0.20	5.000	0	97.3	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ICV**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2739865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ZZZZZZ**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2739866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	101	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **CCV**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.996	0.20	5.000	0	99.9	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ZZZZZZ**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.209	0.20	0.2000	0	105	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ZZZZZZ**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.915	0.20	10.00	0	99.2	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **ICB**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2737997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCB**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCB**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCB**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCB**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117236**
Client ID: **CCB**	Batch ID: **R117236**	TestNo: **EPA 218.6**		Analysis Date: **8/18/2017**	SeqNo: **2738040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **ICB**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/2/2017**	SeqNo: **2739867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **CCB**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117277**
Client ID: **CCB**	Batch ID: **R117277**	TestNo: **EPA 218.6**		Analysis Date: **8/21/2017**	SeqNo: **2739878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/18/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.190	
CCV-2	4.190	
CCV-3	4.181	
CCV-4	4.181	
CCV-5	4.181	
Average	4.185	
Actual RT Window	4.105 - 4.265	
Applied RT Window	3.985 - 4.385	
MB-R117236	N.A.	N.A.
LCS-R117236	4.190	PASS
N025412-003A	4.190	PASS
N025412-003AMS	4.190	PASS
N025412-004A	4.181	PASS
N025412-004AMS	4.190	PASS
N025503-001A	N.A.	N.A.
N025503-001AMS	4.181	PASS
N025503-002A	N.A.	N.A.
N025503-002AMS	4.190	PASS
N025503-003A	4.190	PASS
N025503-003AMS	4.181	PASS
N025503-004A	4.173	PASS
N025503-004AMS	4.181	PASS
N025503-005A	N.A.	N.A.
N025503-005AMS	4.181	PASS
N025503-006A	4.206	PASS
N025503-006AMS	4.181	PASS
N025503-006ADUP	4.165	PASS
N025503-001AMSD	4.181	PASS
N025503-007A	4.190	PASS
N025503-007AMS	4.181	PASS
N025503-008A	4.181	PASS
N025503-008AMS	4.181	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/18/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.190	
CCV-2	4.190	
CCV-3	4.181	
CCV-4	4.181	
CCV-5	4.181	
Average	4.185	
Actual RT Window	4.105 - 4.265	
Applied RT Window	3.985 - 4.385	
N025503-009A	4.181	PASS
N025503-009AMS	4.181	PASS
N025503-010A	4.173	PASS
N025503-010AMS	4.181	PASS
N025503-011A	N.A.	N.A.
N025503-011AMS	4.181	PASS
N025503-012A	4.165	PASS
N025503-012AMS	4.181	PASS
N025503-013A	N.A.	N.A.
N025503-013AMS	4.181	PASS
N025503-014A	4.173	PASS
N025503-014AMS	4.181	PASS
N025503-015A	4.190	PASS
N025503-015AMS	4.173	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 8/21/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.181	
CCV-2	4.181	
Average	4.181	
Actual RT Window	4.101 - 4.261	
Applied RT Window	3.981 - 4.381	
MB-R116277	N.A.	N.A.
LCS-R116277	4.181	PASS
N025503-005A	4.165	PASS
N025503-005ADUP	4.190	PASS
N025503-005AMS	4.181	PASS
N025503-005AMSD	4.181	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	08/02/17 1:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/02/17 1:49 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	08/02/17 1:58 PM	Reported
13	MB-R116844	MBLK	1	Hexavalent Chromium	08/02/17 2:08 PM	Reported
14	LCS-R116844	LCS	1	Hexavalent Chromium	08/02/17 2:17 PM	Reported
15	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 2:28 PM	Reported
16	N025284-001BMS	MS	100	Hexavalent Chromium	08/02/17 2:39 PM	Reported
17	N025284-001BMSD	MSD	100	Hexavalent Chromium	08/02/17 2:48 PM	Reported
18	N025284-002C	SAMP	1	Hexavalent Chromium	08/02/17 2:57 PM	Reported
19	N025284-002CMS	MS	1	Hexavalent Chromium	08/02/17 3:07 PM	Reported
20	N025254-009A	SAMP	1	Hexavalent Chromium	08/02/17 3:16 PM	Not Reported
21	N025254-010A	SAMP	1	Hexavalent Chromium	08/02/17 3:26 PM	Reported
22	N025284-002C	SAMP	5	Hexavalent Chromium	08/02/17 3:35 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	08/02/17 3:45 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	08/02/17 3:54 PM	Reported
25	N025284-002CMS	MS	5	Hexavalent Chromium	08/02/17 4:04 PM	Not Reported
26	N025254-001A	SAMP	1	Hexavalent Chromium	08/02/17 4:13 PM	Reported
27	N025254-002A	SAMP	5	Hexavalent Chromium	08/02/17 4:23 PM	Not Reported
28	N025254-003A	SAMP	50	Hexavalent Chromium	08/02/17 4:32 PM	Reported
29	N025254-004A	SAMP	1	Hexavalent Chromium	08/02/17 4:42 PM	Reported
30	N025254-005A	SAMP	1	Hexavalent Chromium	08/02/17 4:51 PM	Reported
31	N025254-006A	SAMP	1	Hexavalent Chromium	08/02/17 5:00 PM	Reported
32	N025254-007A	SAMP	200	Hexavalent Chromium	08/02/17 5:10 PM	Reported
33	N025254-008A	SAMP	1	Hexavalent Chromium	08/02/17 5:19 PM	Reported
34	N025254-011A	SAMP	1	Hexavalent Chromium	08/02/17 5:29 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	08/02/17 5:38 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	08/02/17 5:48 PM	Reported
37	N025254-012A	SAMP	1	Hexavalent Chromium	08/02/17 5:57 PM	Reported
38	N025254-013A	SAMP	1	Hexavalent Chromium	08/02/17 6:07 PM	Reported
39	N025254-014A	SAMP	5	Hexavalent Chromium	08/02/17 6:16 PM	Not Reported
40	N025254-015A	SAMP	1	Hexavalent Chromium	08/02/17 6:26 PM	Reported
41	N025254-016A	SAMP	1	Hexavalent Chromium	08/02/17 6:35 PM	Reported
42	N025254-017A	SAMP	5	Hexavalent Chromium	08/02/17 6:45 PM	Reported

8/16/2017 rba 8/4/2017

IC-07 RBA 8/4/2017 1:24 PM

INJECTION LOG: 170802A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025254-018A	SAMP	5	Hexavalent Chromium	08/02/17 6:54 PM	Reported
44	N025254-009A	SAMP	10	Hexavalent Chromium	08/02/17 7:04 PM	Reported
45	N025254-009ADUP	DUP	10	Hexavalent Chromium	08/02/17 7:13 PM	Reported
46	N025284-001B	SAMP	100	Hexavalent Chromium	08/02/17 7:22 PM	Not Reported
47	CCV-3	CCV1	1	Hexavalent Chromium	08/02/17 7:32 PM	Reported
48	CCB-3	CCB	1	Hexavalent Chromium	08/02/17 7:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170802A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Aug/17 20:12:12**
No. of Injections:	**51**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		08/02/2017 13:37	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		08/02/2017 13:49	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		08/02/2017 13:58	Finished	ICB R170724A
13	MB-H2O,MBLK,1	14	1000	Unknown		08/02/2017 14:08	Finished	MB R170724A
14	LCS-H2O,LCS,1	15	1000	Unknown		08/02/2017 14:17	Finished	LCS, IWST-170622D
15	N025284-001B,SAMF	1	1000	Unknown		08/02/2017 14:28	Finished	SAMP,0.1> 10mL
16	N025284-001BMS,MS	2	1000	Unknown		08/02/2017 14:39	Finished	MS (5ppb), IWST-170622D,0.1
17	N025284-001BMSD,M	3	1000	Unknown		08/02/2017 14:48	Finished	MSD (5ppb), IWST-170622D,0.
18	N025284-002C,SAMF	4	1000	Unknown		08/02/2017 14:57	Finished	SAMP, 10mL
19	N025284-002CMS,MS	5	1000	Unknown		08/02/2017 15:07	Finished	MS (1ppb), IWST-170622D,10
20	N025254-009A,SAMF	6	1000	Unknown		08/02/2017 15:16	Finished	SAMP, 10mL
21	N025254-010A,SAMF	7	1000	Unknown		08/02/2017 15:26	Finished	SAMP, 10mL
22	N025284-002C,SAMF	8	1000	Unknown		08/02/2017 15:35	Finished	SAMP,2> 10mL
23	CCV-1,CCV1,1,	9	1000	Unknown		08/02/2017 15:45	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	10	1000	Unknown		08/02/2017 15:54	Finished	CCB R170724A
25	N025284-002CMS,MS	11	1000	Unknown		08/02/2017 16:04	Finished	SAMP, 2>10mL
26	N025254-001A,SAMF	12	1000	Unknown		08/02/2017 16:13	Finished	SAMP, 10mL
27	N025254-002A,SAMF	13	1000	Unknown		08/02/2017 16:23	Finished	SAMP, 2>10mL
28	N025254-003A,SAMF	14	1000	Unknown		08/02/2017 16:32	Finished	SAMP, 0.2>10mL
29	N025254-004A,SAMF	15	1000	Unknown		08/02/2017 16:42	Finished	SAMP, 10mL
30	N025254-005A,SAMF	16	1000	Unknown		08/02/2017 16:51	Finished	SAMP, 10mL
31	N025254-006A,SAMF	17	1000	Unknown		08/02/2017 17:00	Finished	SAMP, 10mL
32	N025254-007A,SAMF	18	1000	Unknown		08/02/2017 17:10	Finished	SAMP, 0.05>10mL
33	N025254-008A,SAMF	19	1000	Unknown		08/02/2017 17:19	Finished	SAMP, 10mL
34	N025254-011A,SAMF	20	1000	Unknown		08/02/2017 17:29	Finished	DUP, 10mL
35	CCV-2,CCV,1,	21	1000	Unknown		08/02/2017 17:38	Finished	CCV @5ppb, IWST-170622D
36	CCB-2,CCB,1,	22	1000	Unknown		08/02/2017 17:48	Finished	CCB R170724A
37	N025254-012A,SAMF	23	1000	Unknown		08/02/2017 17:57	Finished	SAMP, 10mL
38	N025254-013A,SAMF	24	1000	Unknown		08/02/2017 18:07	Finished	SAMP, 10mL
39	N025254-014A,SAMF	25	1000	Unknown		08/02/2017 18:16	Finished	SAMP, 2>10mL
40	N025254-015A,SAMF	26	1000	Unknown		08/02/2017 18:26	Finished	SAMP, 10mL
41	N025254-016A,SAMF	27	1000	Unknown		08/02/2017 18:35	Finished	SAMP, 10mL
42	N025254-017A,SAMF	28	1000	Unknown		08/02/2017 18:45	Finished	SAMP,2> 10mL
43	N025254-018A,SAMF	29	1000	Unknown		08/02/2017 18:54	Finished	SAMP,2> 10mL
44	N025254-009A,SAMF	30	1000	Unknown		08/02/2017 19:04	Finished	SAMP, 1>10mL
45	N025254-009ADUP,D	31	1000	Unknown		08/02/2017 19:13	Finished	DUP, 1>10mL
46	N025284-001B,SAMF	32	1000	Unknown		08/02/2017 19:22	Finished	SAMP,0.1> 10mL
47	CCV-3,CCV1,1,	33	1000	Unknown		08/02/2017 19:32	Finished	CCV @10ppb, IWST-170622C
48	CCB-3,CCB,1,	34	1000	Unknown		08/02/2017 19:41	Finished	CCB R170724A
49	SHUTDOWN	35	1000	Unknown		08/02/2017 19:51	Finished	
50	Eluent: R170801A	36	1000	Unknown		n.a.	Finished	Eluent
51	PCR: R170801B	37	1000	Unknown		n.a.	Finished	Post-Column Reagent

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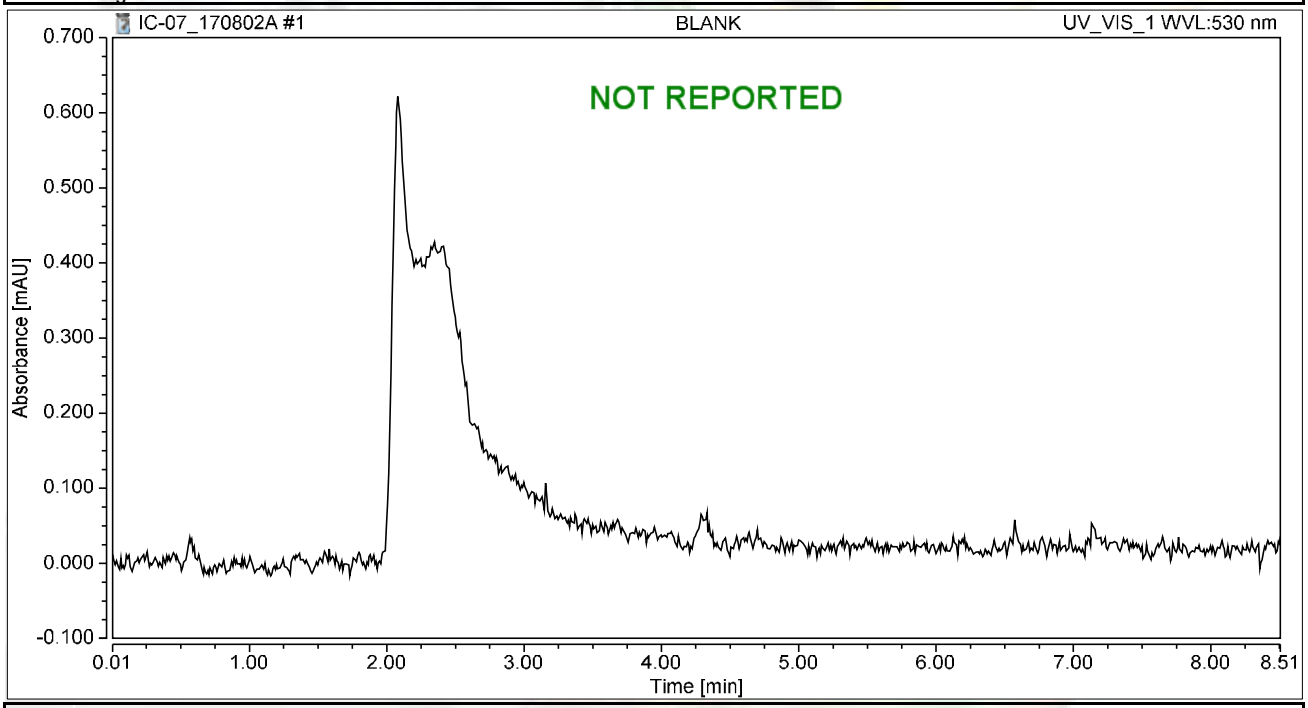
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

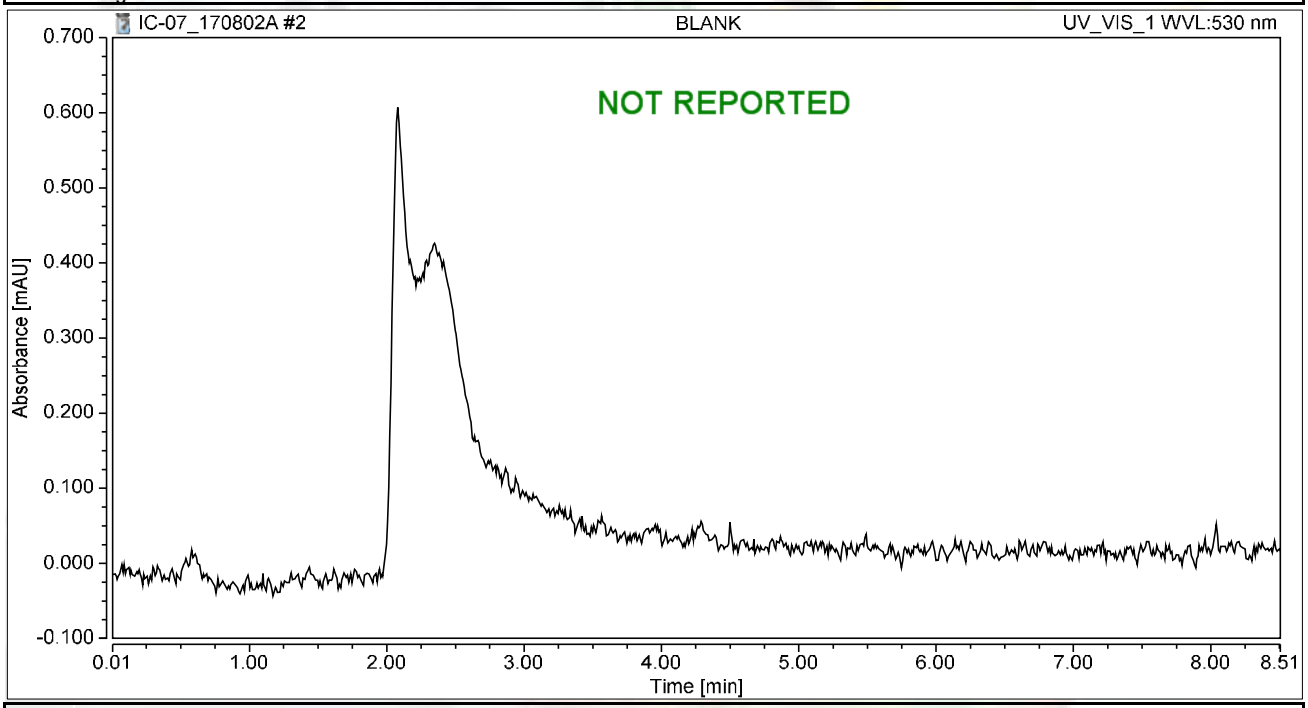
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

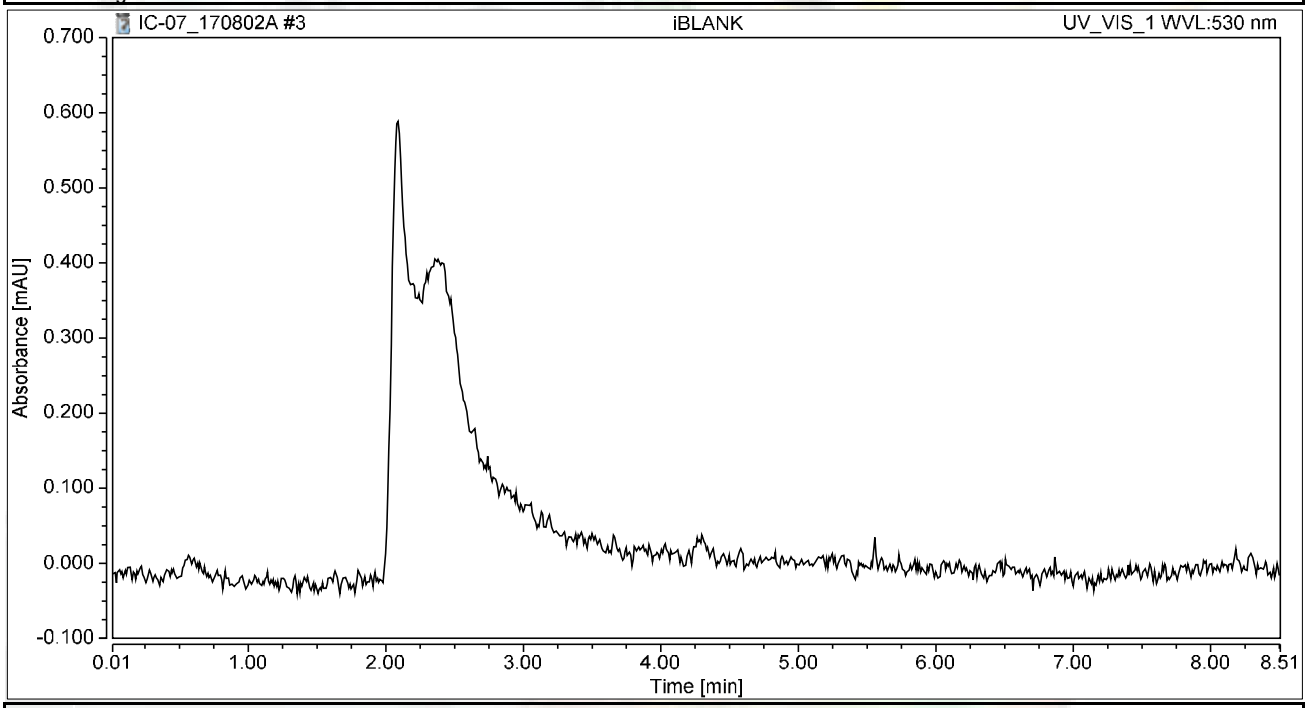
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

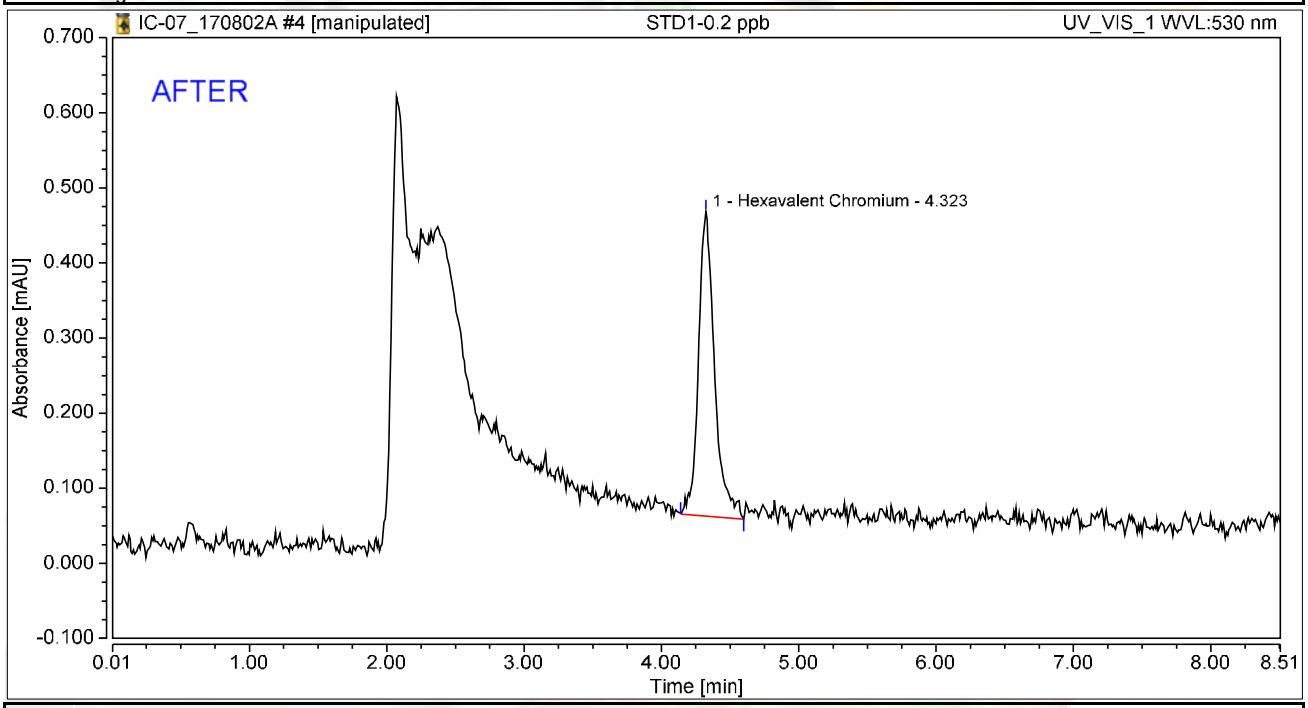
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.055	0.405	100.00	100.00	0.2082
Total:			**0.055**	**0.405**	**100.00**	**100.00**	

rba 8/4/2017

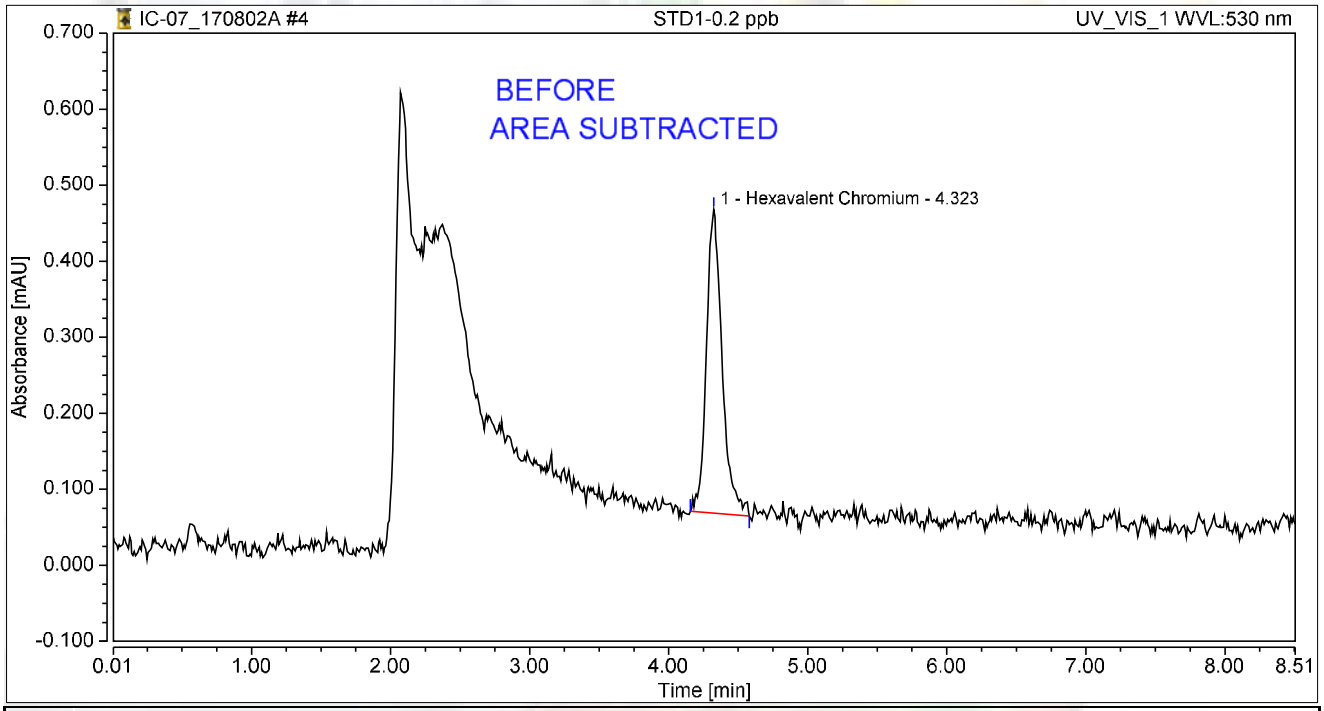
Reviewed by: 8/16/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.052	0.399	100.00	100.00	0.1970
Total:			**0.052**	**0.399**	**100.00**	**100.00**	

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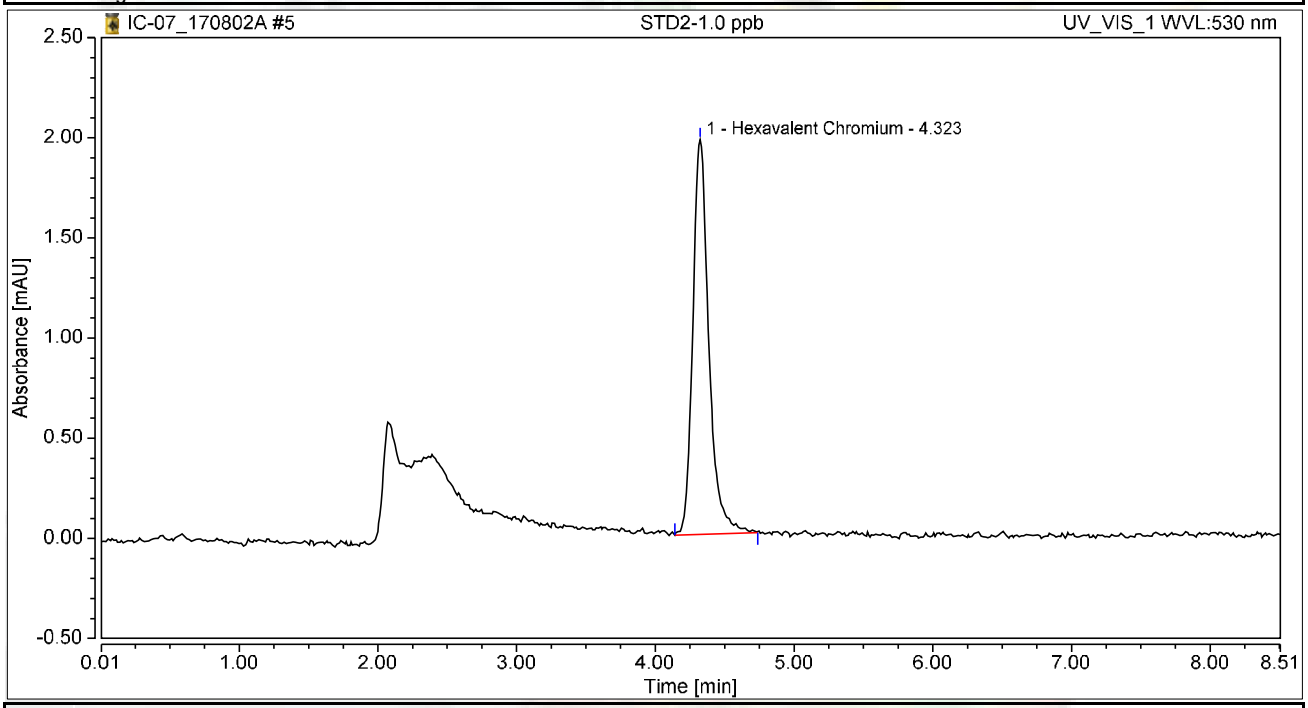
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

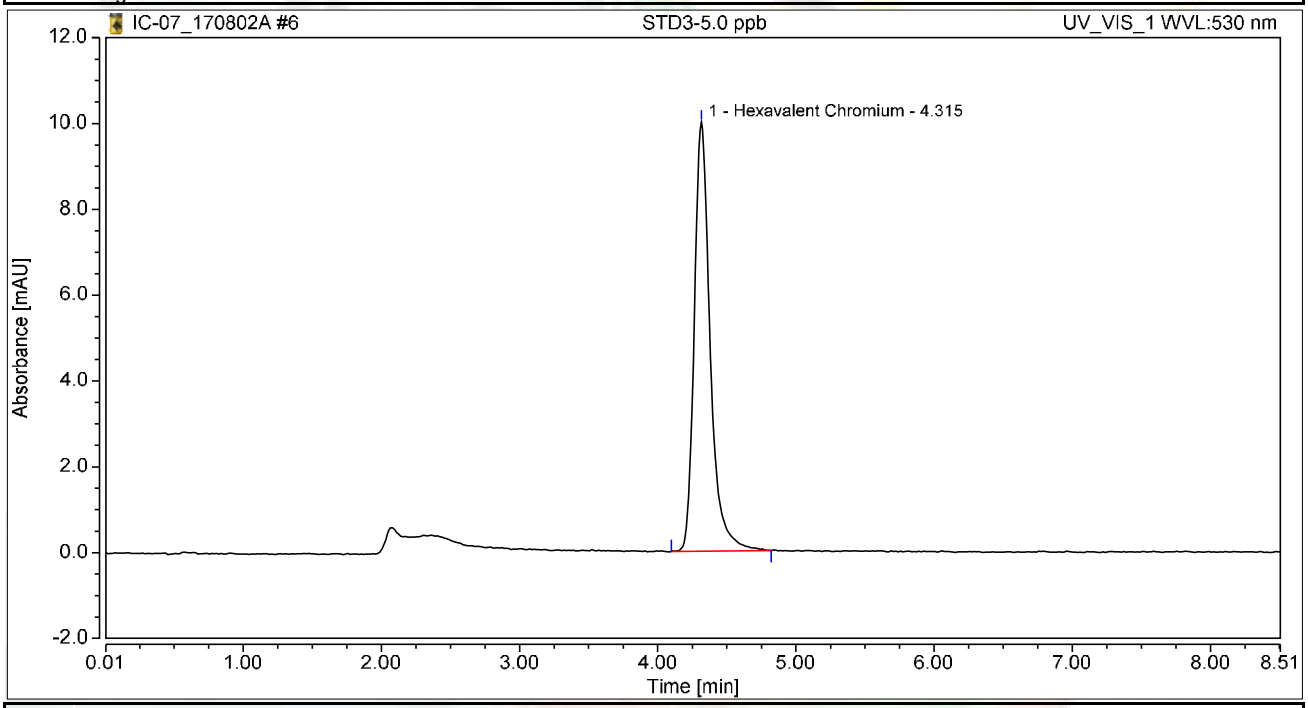
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	0.265	1.972	100.00	100.00	1.0051
Total:			**0.265**	**1.972**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

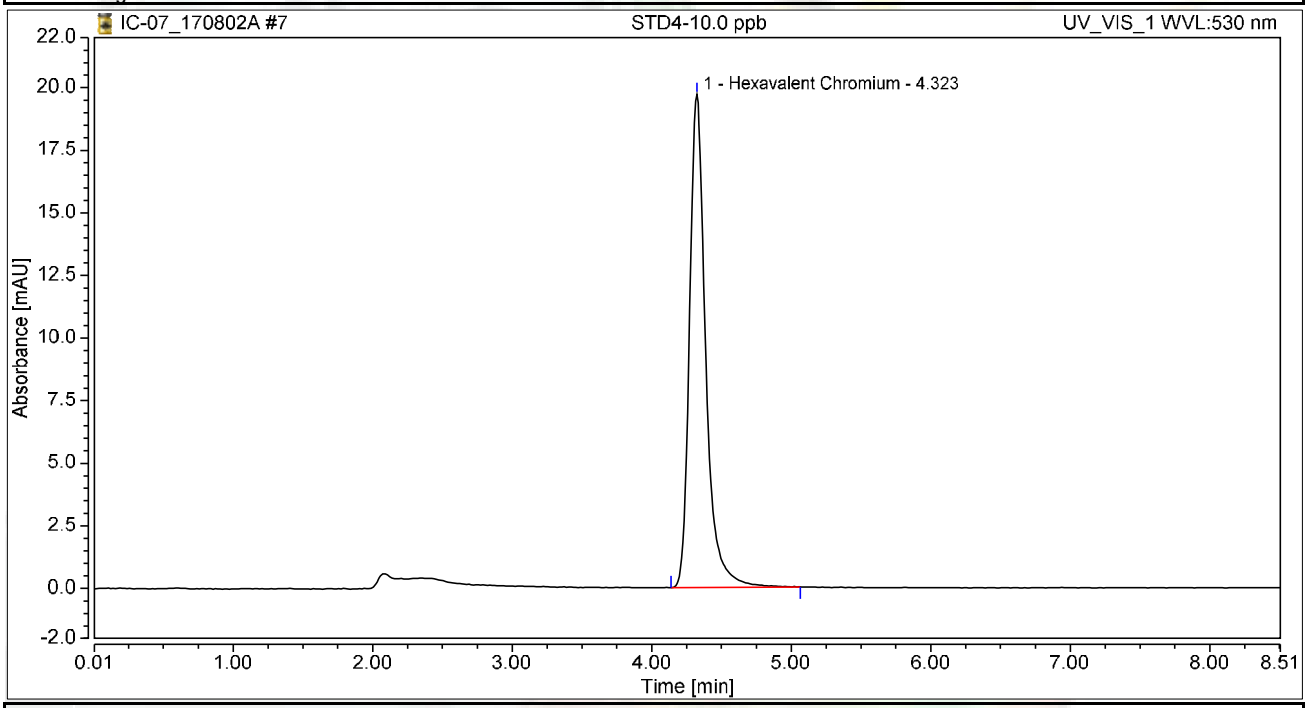
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	1.335	9.999	100.00	100.00	5.0677
Total:			**1.335**	**9.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

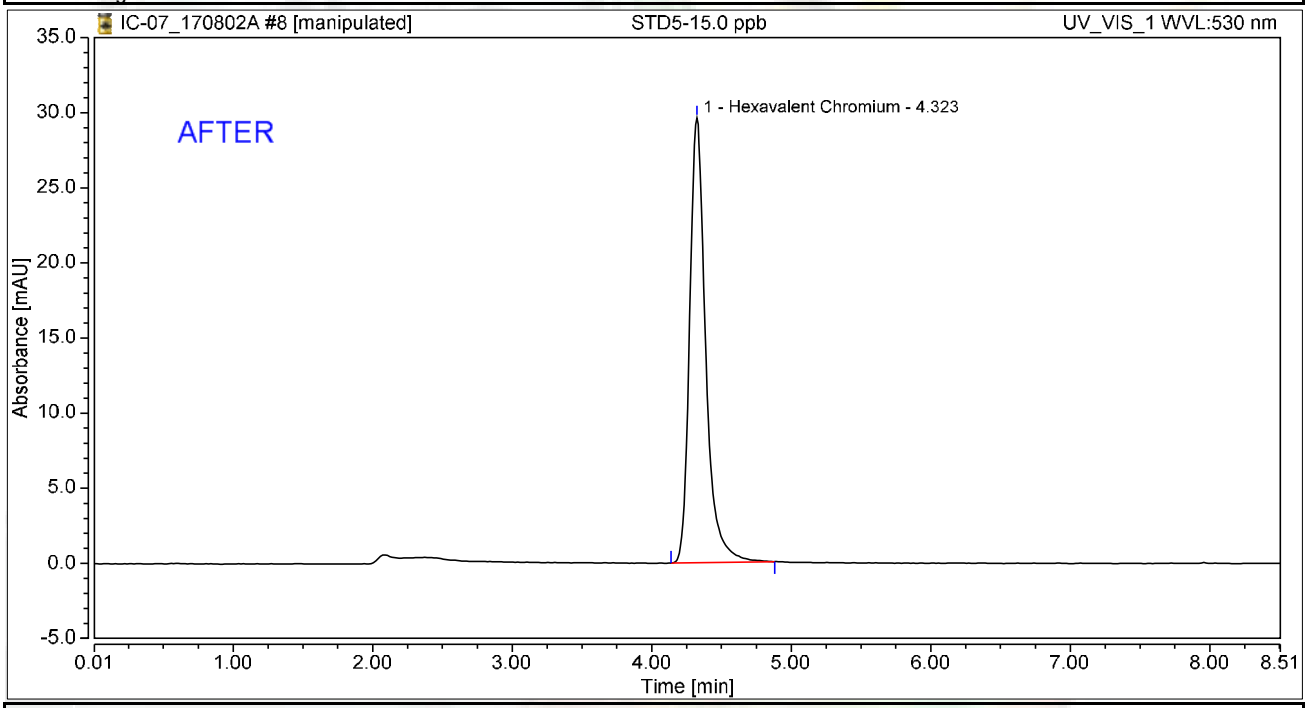
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	2.645	19.695	100.00	100.00	10.0407
Total:			**2.645**	**19.695**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	3.955	29.622	100.00	100.00	15.0148
Total:			**3.955**	**29.622**	**100.00**	**100.00**	

rba 8/4/2017

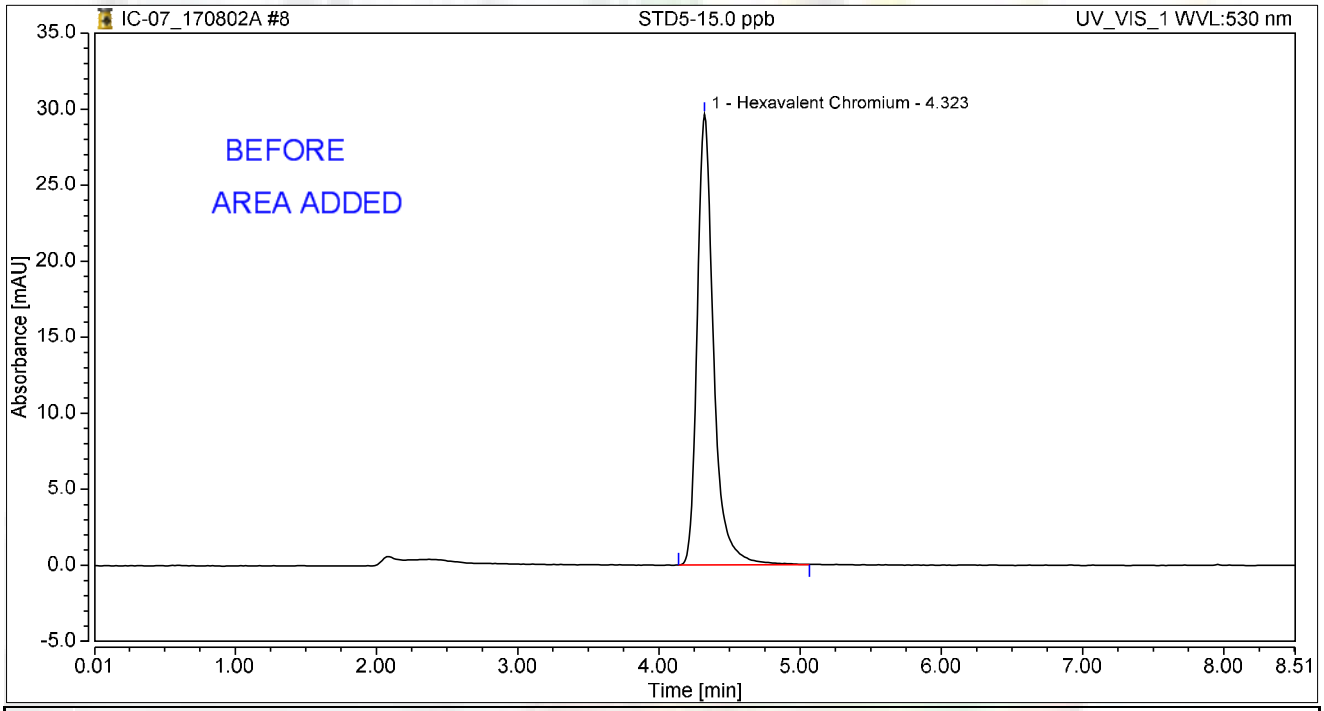
Reviewed by: Nancy 8/16/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	3.982	29.636	100.00	100.00	15.0336
Total:			**3.982**	**29.636**	**100.00**	**100.00**	

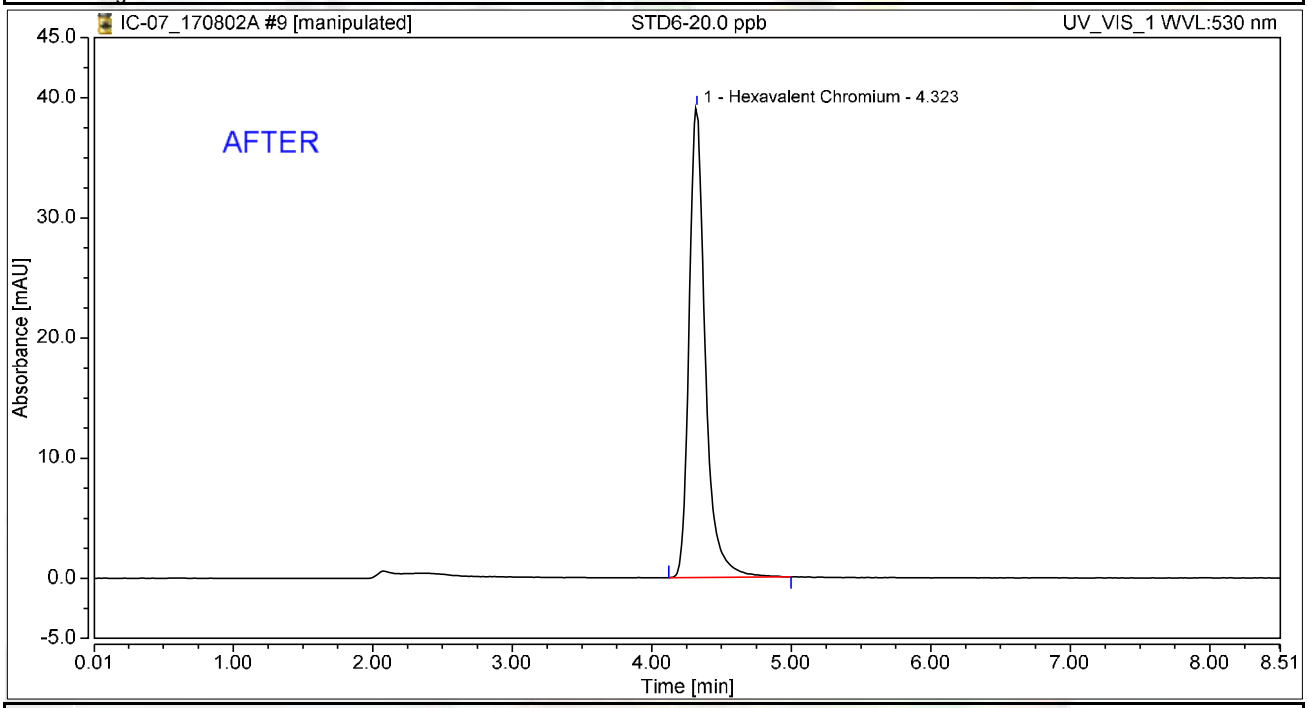
rba 8/4/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	5.255	39.087	100.00	100.00	19.9513
Total:			**5.255**	**39.087**	**100.00**	**100.00**	

rba 8/4/2017

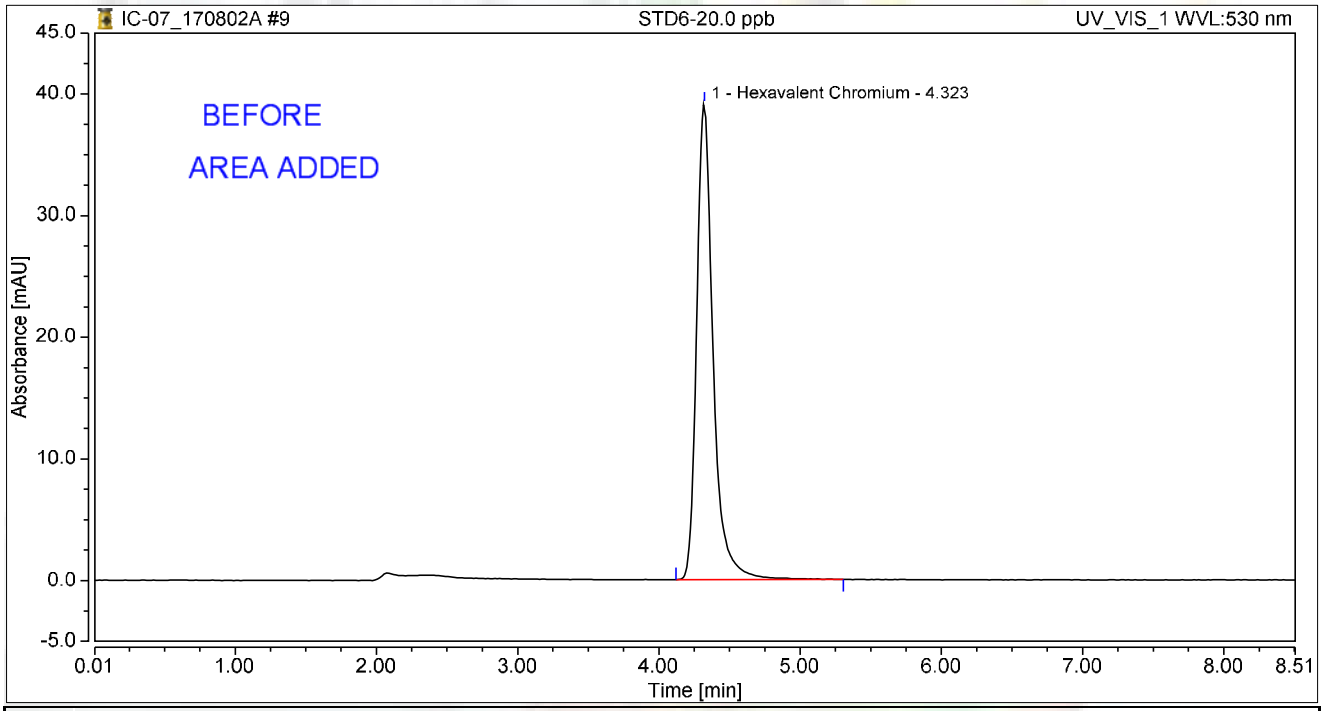
Reviewed by: 8/16/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

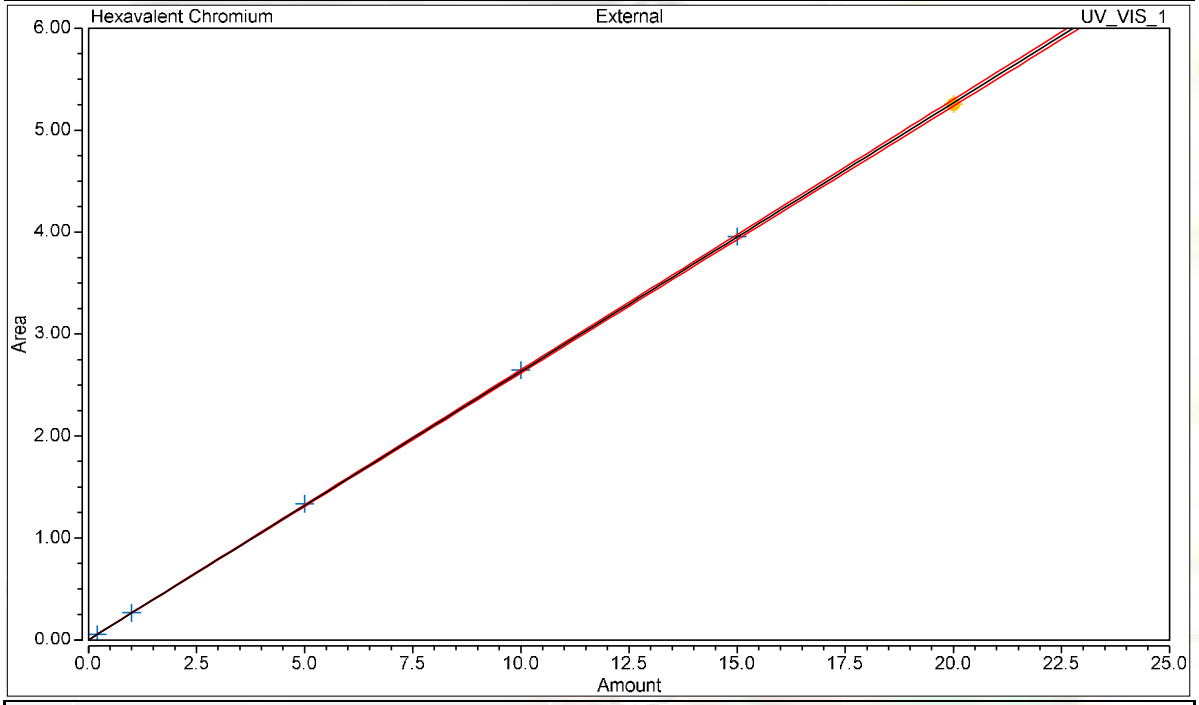
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.323	5.291	39.100	100.00	100.00	19.9729
Total:			**5.291**	**39.100**	**100.00**	**100.00**	

rba 8/4/2017

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2634
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99997

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

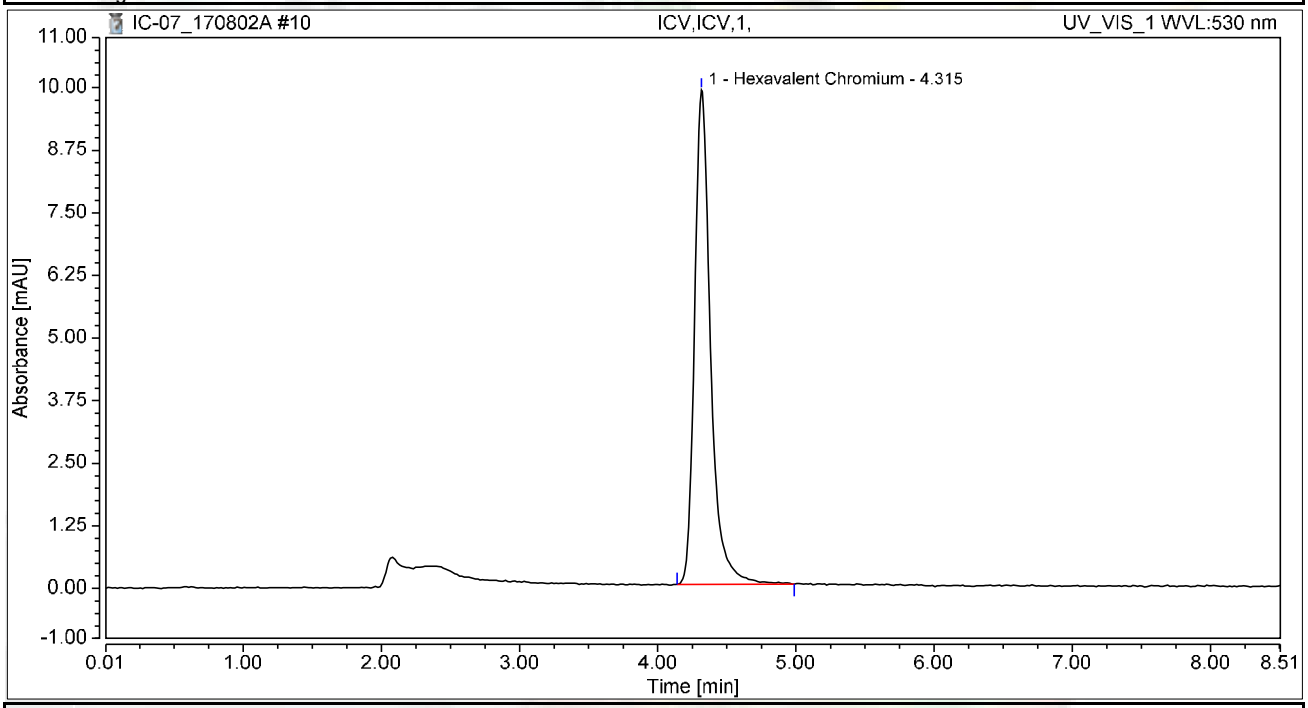
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0548	0.055	0.405
5	STD2-1.0 ppb	02	1.0000	0.2647	0.265	1.972
6	STD3-5.0 ppb	03	5.0000	1.3349	1.335	9.999
7	STD4-10.0 ppb	04	10.0000	2.6448	2.645	19.695
8	STD5-15.0 ppb	05	15.0000	3.9550	3.955	29.622
9	STD6-20.0 ppb	06	20.0000	5.2553	5.255	39.087

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

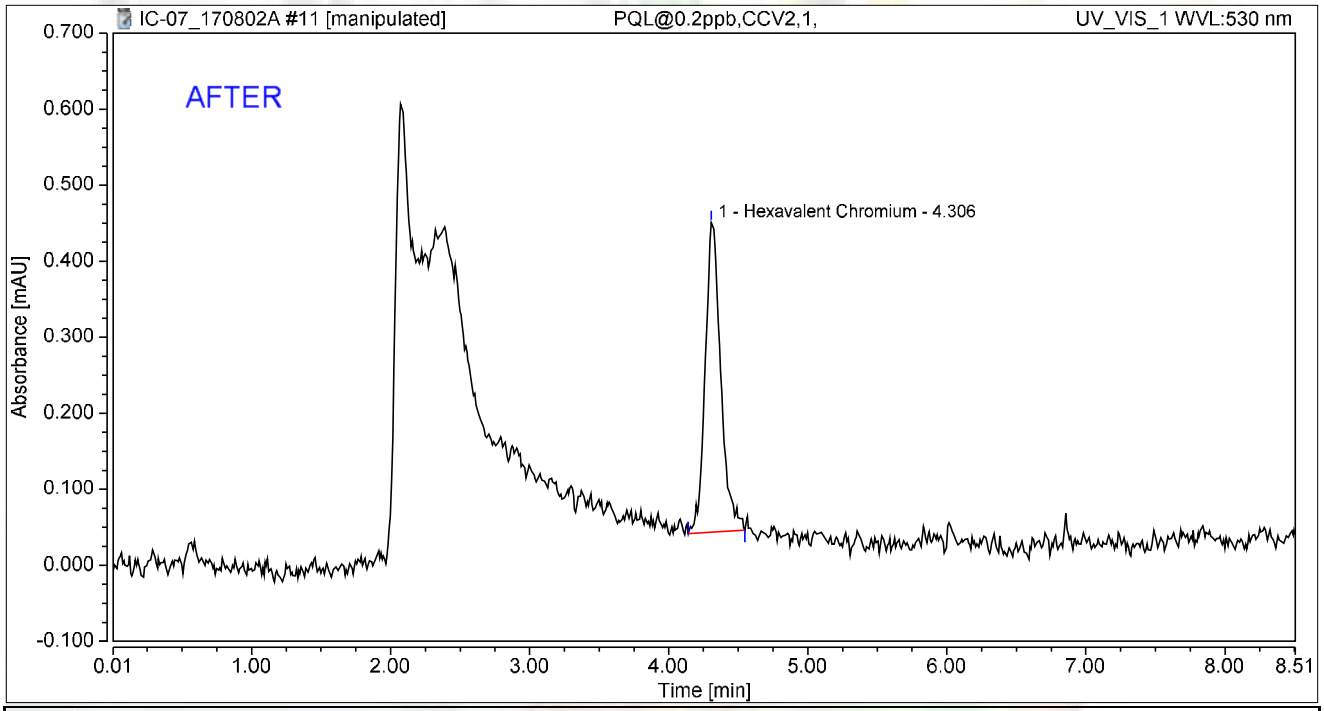
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	1.331	9.873	100.00	100.00	5.0542
Total:			**1.331**	**9.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.053	0.407	100.00	100.00	0.2013
Total:			**0.053**	**0.407**	**100.00**	**100.00**	

rba 8/4/2017

Reviewed by: Nancy 8/16/2017

My first report/Integration

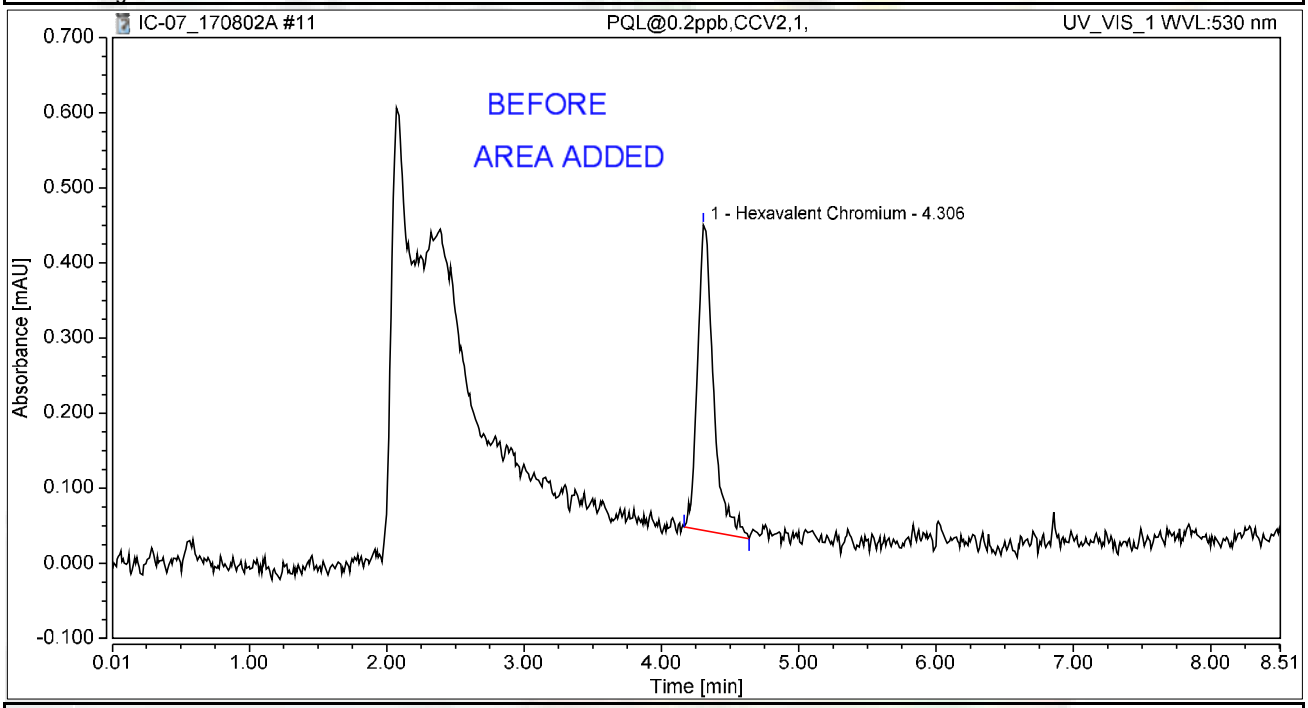
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	0.055	0.407	100.00	100.00	0.2076
Total:			**0.055**	**0.407**	**100.00**	**100.00**	

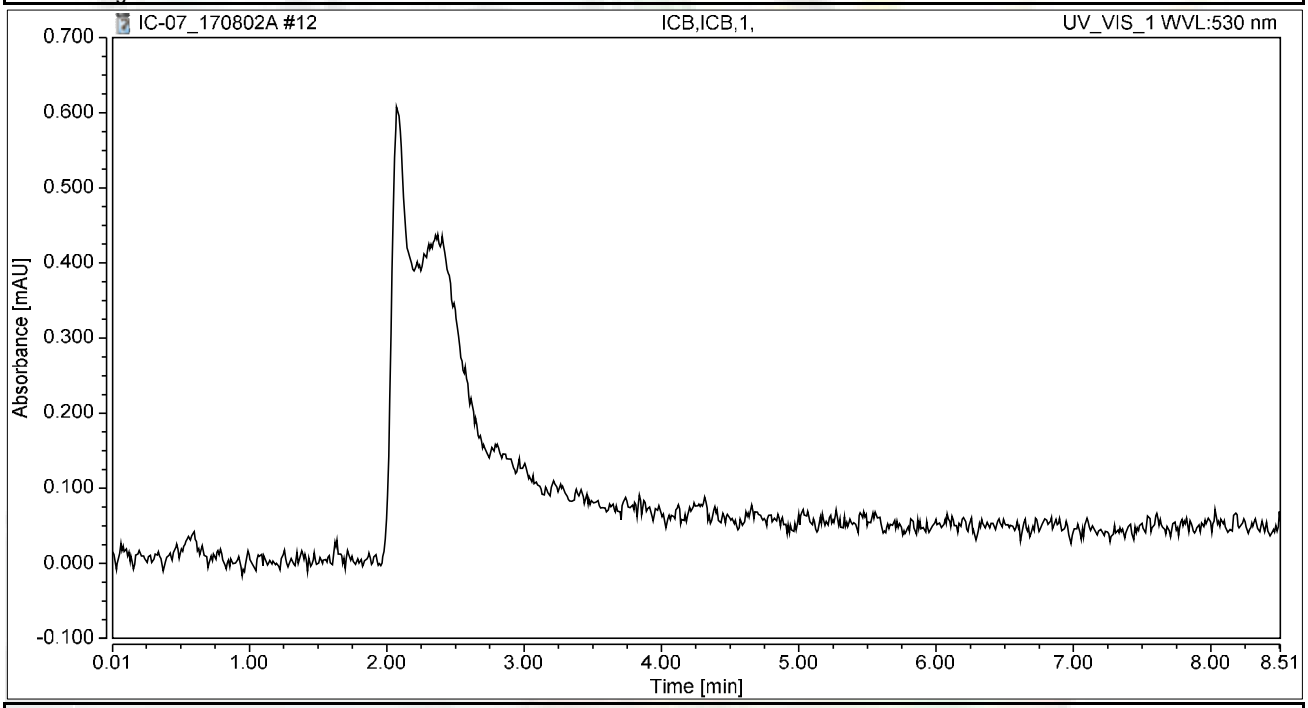
rba 8/4/2017

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Aug/17 13:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170818A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/18/17 9:36 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/18/17 9:46 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/18/17 9:56 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/18/17 10:05 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/18/17 10:15 AM	Reported
15	MB-R117236	MBLK	1	Hexavalent Chromium	08/18/17 10:24 AM	Reported
16	LCS-R117236	LCS	1	Hexavalent Chromium	08/18/17 10:34 AM	Reported
17	N025412-003A	SAMP	5	Hexavalent Chromium	08/18/17 10:45 AM	Not Reported
18	N025412-003AMS	MS	5	Hexavalent Chromium	08/18/17 10:56 AM	Not Reported
19	N025412-004A	SAMP	5	Hexavalent Chromium	08/18/17 11:06 AM	Not Reported
20	N025412-004AMS	MS	5	Hexavalent Chromium	08/18/17 11:15 AM	Not Reported
21	N025503-001A	SAMP	1	Hexavalent Chromium	08/18/17 11:25 AM	Reported
22	N025503-001AMS	MS	1	Hexavalent Chromium	08/18/17 11:34 AM	Reported
23	N025503-002A	SAMP	1	Hexavalent Chromium	08/18/17 11:44 AM	Reported
24	N025503-002AMS	MS	1	Hexavalent Chromium	08/18/17 11:53 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	08/18/17 12:02 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	08/18/17 12:12 PM	Reported
27	N025503-003A	SAMP	1	Hexavalent Chromium	08/18/17 12:21 PM	Reported
28	N025503-003AMS	MS	1	Hexavalent Chromium	08/18/17 12:31 PM	Reported
29	N025503-004A	SAMP	1	Hexavalent Chromium	08/18/17 12:40 PM	Reported
30	N025503-004AMS	MS	1	Hexavalent Chromium	08/18/17 12:50 PM	Reported
31	N025503-005A	SAMP	1	Hexavalent Chromium	08/18/17 1:11 PM	Not Reported
32	N025503-005AMS	MS	1	Hexavalent Chromium	08/18/17 1:21 PM	Not Reported
33	N025503-006A	SAMP	1	Hexavalent Chromium	08/18/17 1:30 PM	Reported
34	N025503-006AMS	MS	1	Hexavalent Chromium	08/18/17 1:40 PM	Reported
35	N025503-006ADUP	DUP	1	Hexavalent Chromium	08/18/17 1:49 PM	Reported
36	N025503-001AMSD	MSD	1	Hexavalent Chromium	08/18/17 1:59 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	08/18/17 2:08 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	08/18/17 2:18 PM	Reported
39	N025503-007A	SAMP	1	Hexavalent Chromium	08/18/17 2:28 PM	Reported
40	N025503-007AMS	MS	1	Hexavalent Chromium	08/18/17 2:39 PM	Reported
41	N025503-008A	SAMP	1	Hexavalent Chromium	08/18/17 2:48 PM	Reported
42	N025503-008AMS	MS	1	Hexavalent Chromium	08/18/17 2:58 PM	Reported

INJECTION LOG: 170818A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N025503-009A	SAMP	1	Hexavalent Chromium	08/18/17 3:07 PM	Reported
44	N025503-009AMS	MS	1	Hexavalent Chromium	08/18/17 3:17 PM	Reported
45	N025503-010A	SAMP	1	Hexavalent Chromium	08/18/17 3:26 PM	Reported
46	N025503-010AMS	MS	1	Hexavalent Chromium	08/18/17 3:36 PM	Reported
47	N025503-011A	SAMP	1	Hexavalent Chromium	08/18/17 3:45 PM	Reported
48	N025503-011AMS	MS	1	Hexavalent Chromium	08/18/17 3:55 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	08/18/17 4:04 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	08/18/17 4:14 PM	Reported
51	N025503-012A	SAMP	1	Hexavalent Chromium	08/18/17 4:23 PM	Reported
52	N025503-012AMS	MS	1	Hexavalent Chromium	08/18/17 4:32 PM	Reported
53	N025503-013A	SAMP	1	Hexavalent Chromium	08/18/17 4:42 PM	Reported
54	N025503-013AMS	MS	1	Hexavalent Chromium	08/18/17 4:51 PM	Reported
55	N025503-014A	SAMP	1	Hexavalent Chromium	08/18/17 5:01 PM	Reported
56	N025503-014AMS	MS	1	Hexavalent Chromium	08/18/17 5:10 PM	Reported
57	N025503-015A	SAMP	1	Hexavalent Chromium	08/18/17 5:20 PM	Reported
58	N025503-015AMS	MS	1	Hexavalent Chromium	08/18/17 5:29 PM	Reported
59	CCV-5	CCV	1	Hexavalent Chromium	08/18/17 5:39 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	08/18/17 5:48 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170818A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**18/Aug/17 18:18:57**
No. of Injections:	**63**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/18/2017 09:36	Finished	
11	BLANK	2	1000	Unknown		08/18/2017 09:46	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/18/2017 09:56	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/18/2017 10:05	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/18/2017 10:15	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/18/2017 10:24	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/18/2017 10:34	Finished	LCS, IWST-170622D
17	N025412-003A,SAMP	9	1000	Unknown		08/18/2017 10:45	Finished	SAMP,2>10mL
18	N025412-003AMS,MS	10	1000	Unknown		08/18/2017 10:56	Finished	MS (5ppb), IWST-170622D,2>1
19	N025412-004A,SAMP	11	1000	Unknown		08/18/2017 11:06	Finished	SAMP,2>10mL
20	N025412-004AMS,MS	12	1000	Unknown		08/18/2017 11:15	Finished	MS (5ppb), IWST-170622D,2>1
21	N025503-001A,SAMP	13	1000	Unknown		08/18/2017 11:25	Finished	SAMP,10mL
22	N025503-001AMS,MS	14	1000	Unknown		08/18/2017 11:34	Finished	MS (1ppb), IWST-170622D,10
23	N025503-002A,SAMP	15	1000	Unknown		08/18/2017 11:44	Finished	SAMP,10mL
24	N025503-002AMS,MS	16	1000	Unknown		08/18/2017 11:53	Finished	MS (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	17	1000	Unknown		08/18/2017 12:02	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	18	1000	Unknown		08/18/2017 12:12	Finished	CCB R170724A
27	N025503-003A,SAMP	19	1000	Unknown		08/18/2017 12:21	Finished	SAMP,10mL
28	N025503-003AMS,MS	20	1000	Unknown		08/18/2017 12:31	Finished	MS (1ppb), IWST-170622D,10
29	N025503-004A,SAMP	21	1000	Unknown		08/18/2017 12:40	Finished	SAMP,10mL
30	N025503-004AMS,MS	22	1000	Unknown		08/18/2017 12:50	Finished	MS (1ppb), IWST-170622D,10
31	N025503-005A,SAMP	23	1000	Unknown		08/18/2017 13:11	Finished	SAMP,10mL
32	N025503-005AMS,MS	24	1000	Unknown		08/18/2017 13:21	Finished	MS (1ppb), IWST-170622D,10
33	N025503-006A,SAMP	25	1000	Unknown		08/18/2017 13:30	Finished	SAMP,10mL
34	N025503-006AMS,MS	26	1000	Unknown		08/18/2017 13:40	Finished	MS (1ppb), IWST-170622D,10
35	N025503-006ADUP,D	27	1000	Unknown		08/18/2017 13:49	Finished	DUP,10mL
36	N025503-001AMSD,M	28	1000	Unknown		08/18/2017 13:59	Finished	MSD (1ppb), IWST-170622D,1
37	CCV-3,CCV,1,	29	1000	Unknown		08/18/2017 14:08	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		08/18/2017 14:18	Finished	CCB R170815A
39	N025503-007A,SAMP	1	1000	Unknown		08/18/2017 14:28	Finished	SAMP,10mL
40	N025503-007AMS,MS	2	1000	Unknown		08/18/2017 14:39	Finished	MS (1ppb), IWST-170622D,10
41	N025503-008A,SAMP	3	1000	Unknown		08/18/2017 14:48	Finished	SAMP,10mL
42	N025503-008AMS,MS	4	1000	Unknown		08/18/2017 14:58	Finished	MS (1ppb), IWST-170622D,10
43	N025503-009A,SAMP	5	1000	Unknown		08/18/2017 15:07	Finished	SAMP,10mL
44	N025503-009AMS,MS	6	1000	Unknown		08/18/2017 15:17	Finished	MS (1ppb), IWST-170622D,10
45	N025503-010A,SAMP	7	1000	Unknown		08/18/2017 15:26	Finished	SAMP,10mL
46	N025503-010AMS,MS	8	1000	Unknown		08/18/2017 15:36	Finished	MS (1ppb), IWST-170622D,10
47	N025503-011A,SAMP	9	1000	Unknown		08/18/2017 15:45	Finished	SAMP,10mL
48	N025503-011AMS,MS	10	1000	Unknown		08/18/2017 15:55	Finished	MS (1ppb), IWST-170622D,10
49	CCV-4,CCV1,1,	11	1000	Unknown		08/18/2017 16:04	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	12	1000	Unknown		08/18/2017 16:14	Finished	CCB R170815A
51	N025503-012A,SAMP	13	1000	Unknown		08/18/2017 16:23	Finished	SAMP,10mL
52	N025503-012AMS,MS	14	1000	Unknown		08/18/2017 16:32	Finished	MS (1ppb), IWST-170622D,10
53	N025503-013A,SAMP	15	1000	Unknown		08/18/2017 16:42	Finished	SAMP,10mL
54	N025503-013AMS,MS	16	1000	Unknown		08/18/2017 16:51	Finished	MS (1ppb), IWST-170622D,10
55	N025503-014A,SAMP	17	1000	Unknown		08/18/2017 17:01	Finished	SAMP,10mL
56	N025503-014AMS,MS	18	1000	Unknown		08/18/2017 17:10	Finished	MS (1ppb), IWST-170622D,10
57	N025503-015A,SAMP	19	1000	Unknown		08/18/2017 17:20	Finished	SAMP,10mL
58	N025503-015AMS,MS	20	1000	Unknown		08/18/2017 17:29	Finished	MS (1ppb), IWST-170622D,10
59	CCV-5,CCV,1,	21	1000	Unknown		08/18/2017 17:39	Finished	CCV @5ppb, IWST-170622C
60	CCB-5,CCB,1,	22	1000	Unknown		08/18/2017 17:48	Finished	CCB R170724A

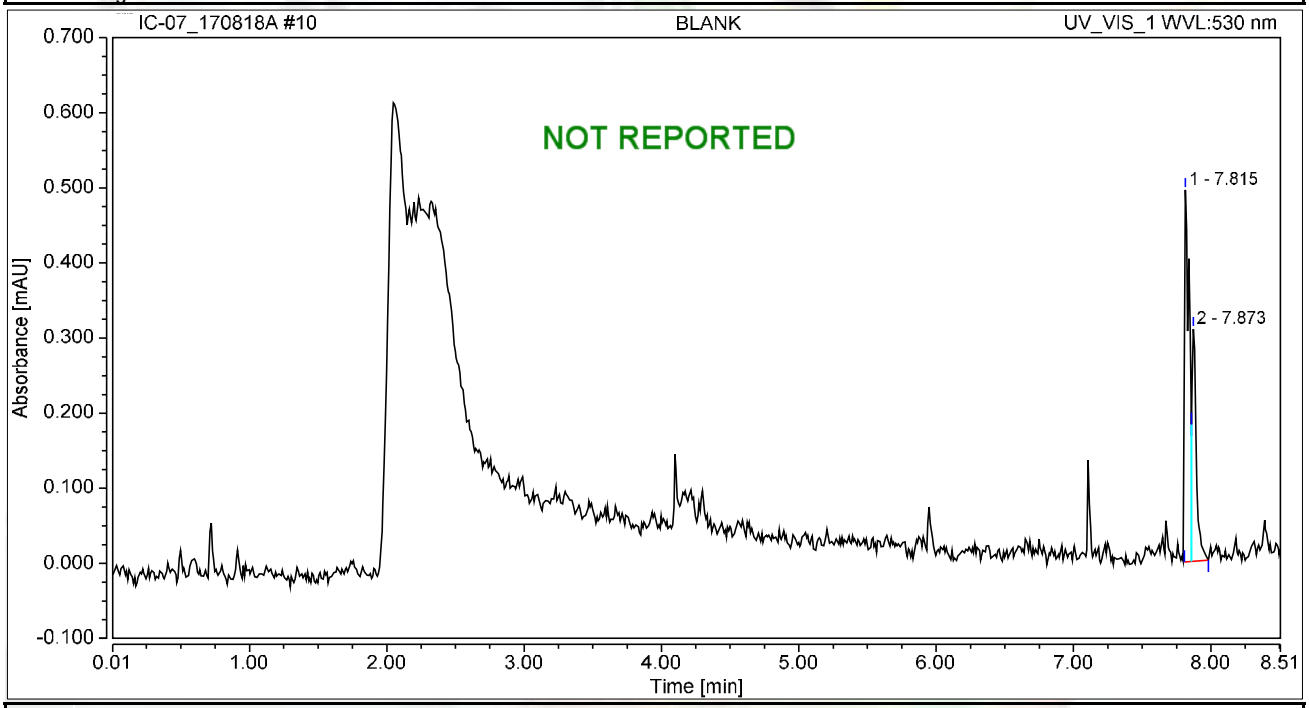
61	SHUTDOWN	23	1000	Unknown		08/18/2017 17:58	Finished	
62	Eluent: R170818A	24	1000	Unknown		n.a.	Finished	Eluent
63	PCR: R170818B	25	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 09:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

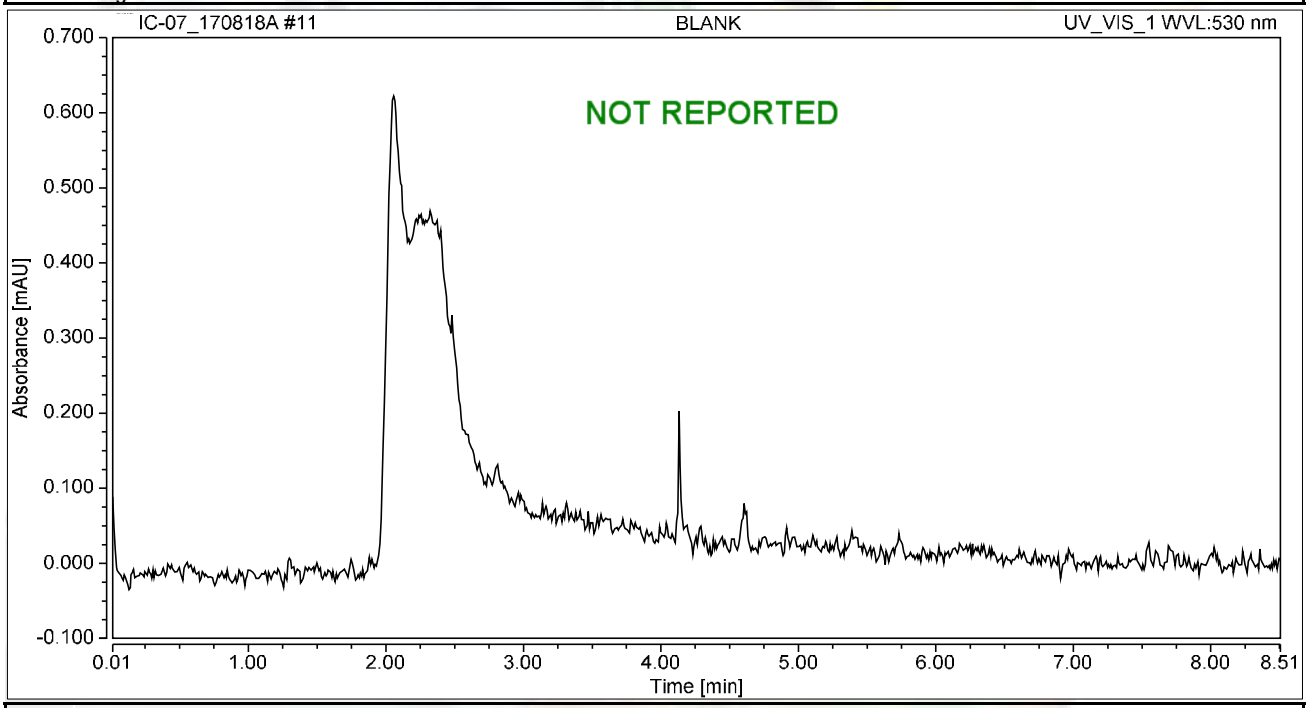
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.815	0.017	0.495	59.57	61.57	n.a.
2		7.873	0.012	0.309	40.43	38.43	n.a.
Total:			**0.029**	**0.805**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 09:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

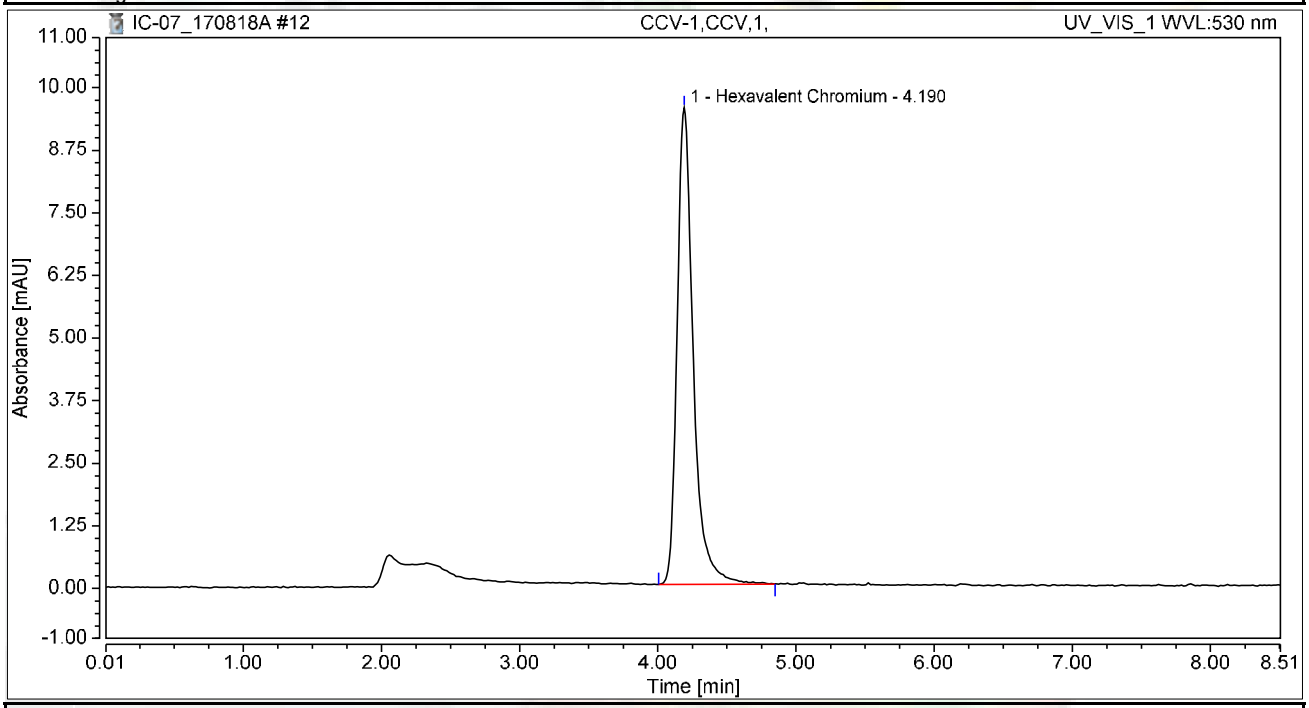
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

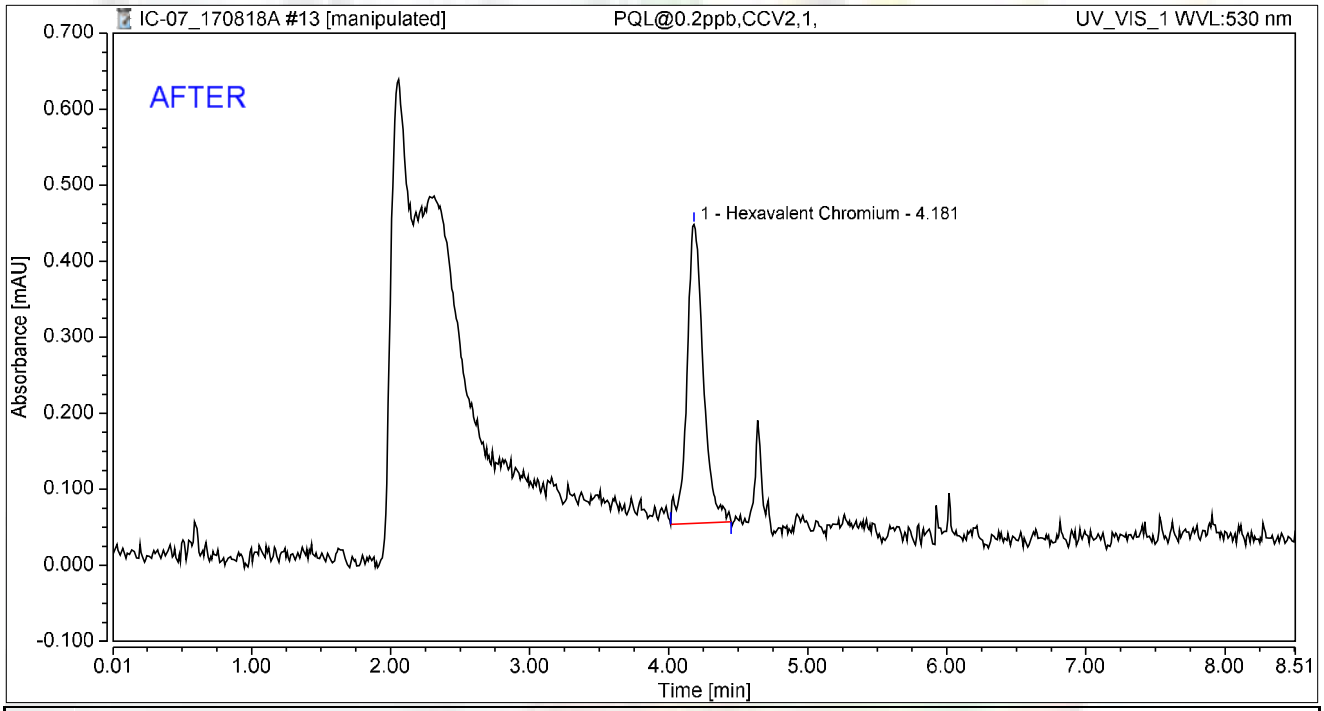
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	1.291	9.527	100.00	100.00	4.9023
Total:			**1.291**	**9.527**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.054	0.393	100.00	100.00	0.2034
Total:			**0.054**	**0.393**	**100.00**	**100.00**	

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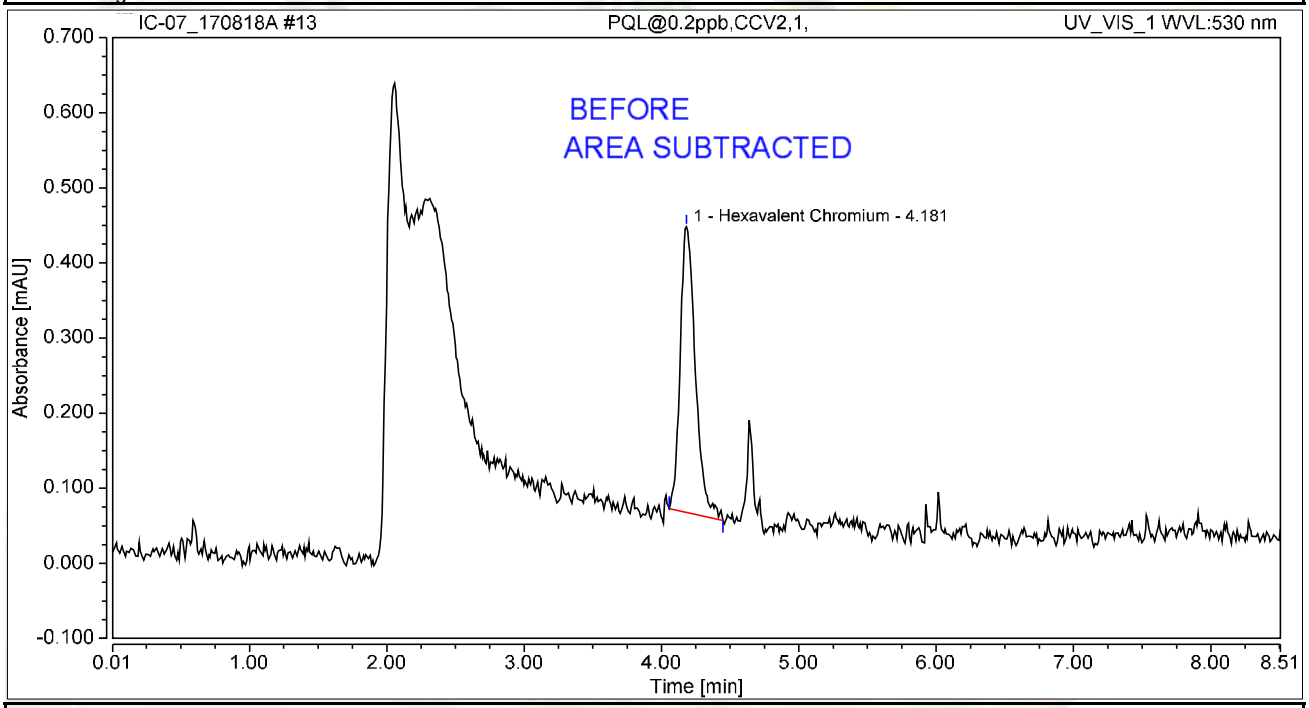
Reviewed by: Dionex 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.049	0.380	100.00	100.00	0.1855
Total:			**0.049**	**0.380**	**100.00**	**100.00**	

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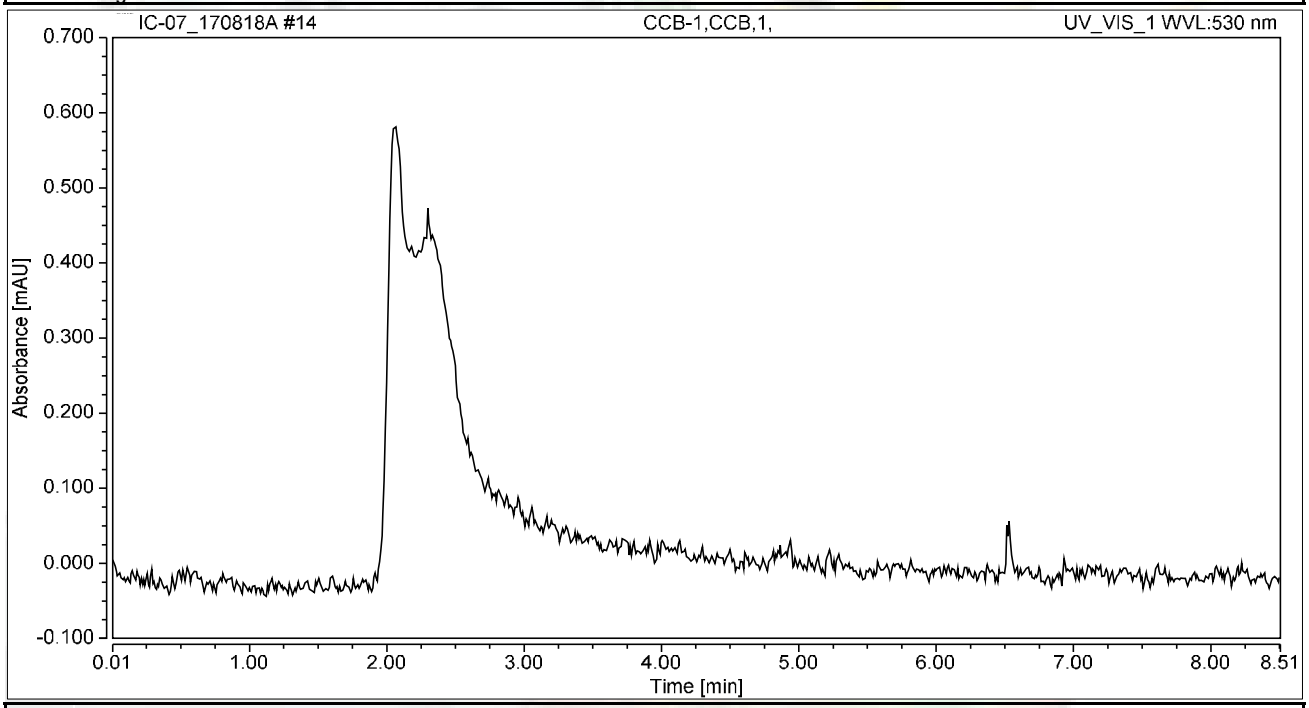
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

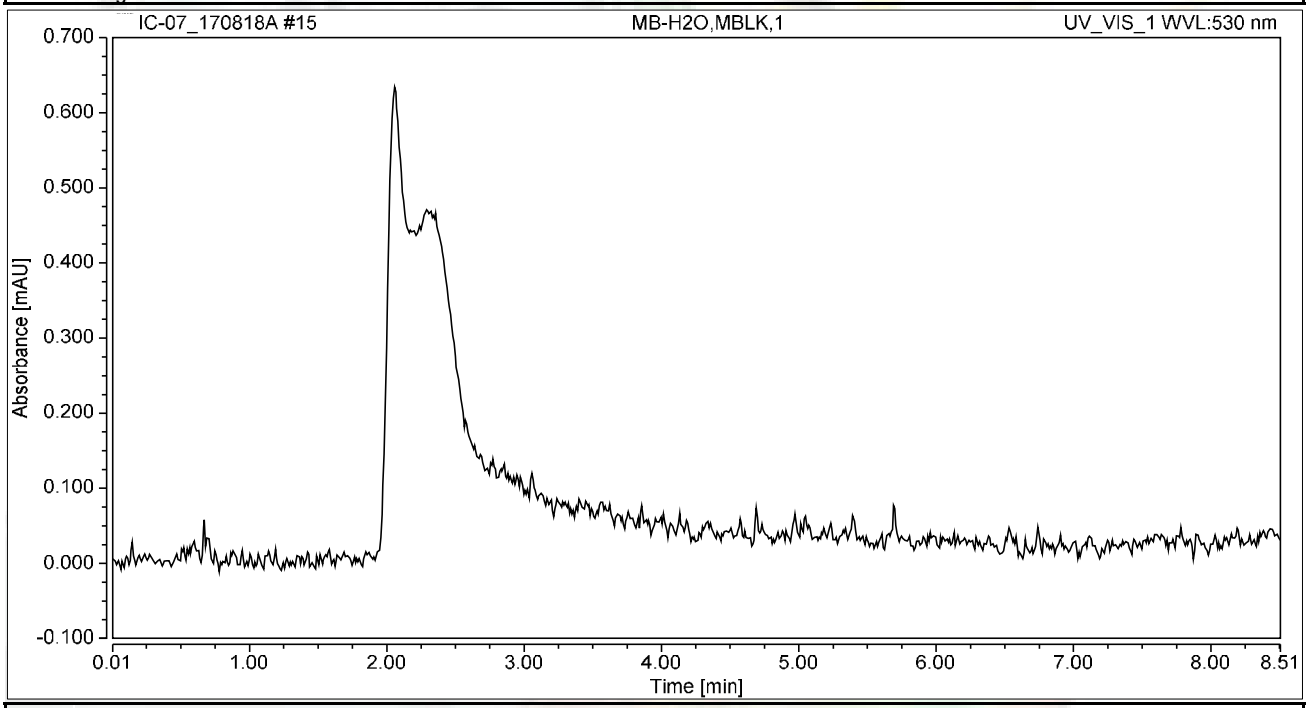
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

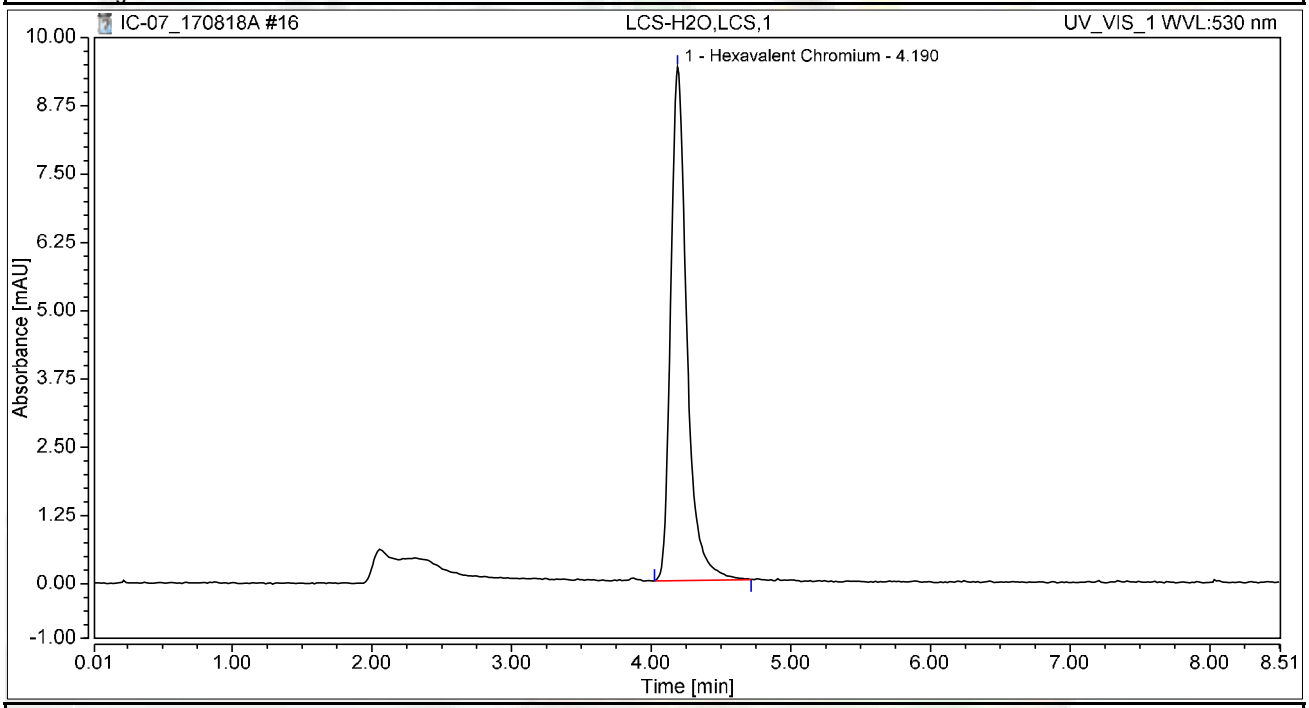
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

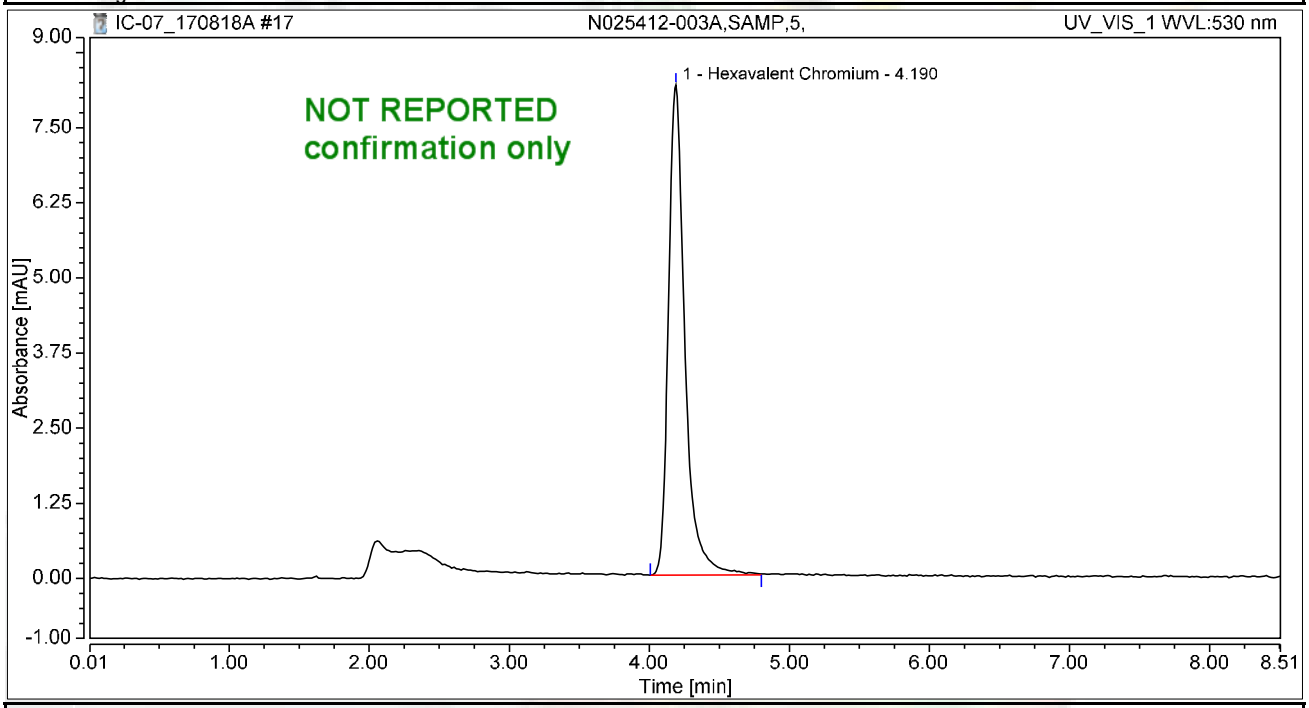
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	1.261	9.402	100.00	100.00	4.7879
Total:			**1.261**	**9.402**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025412-003A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

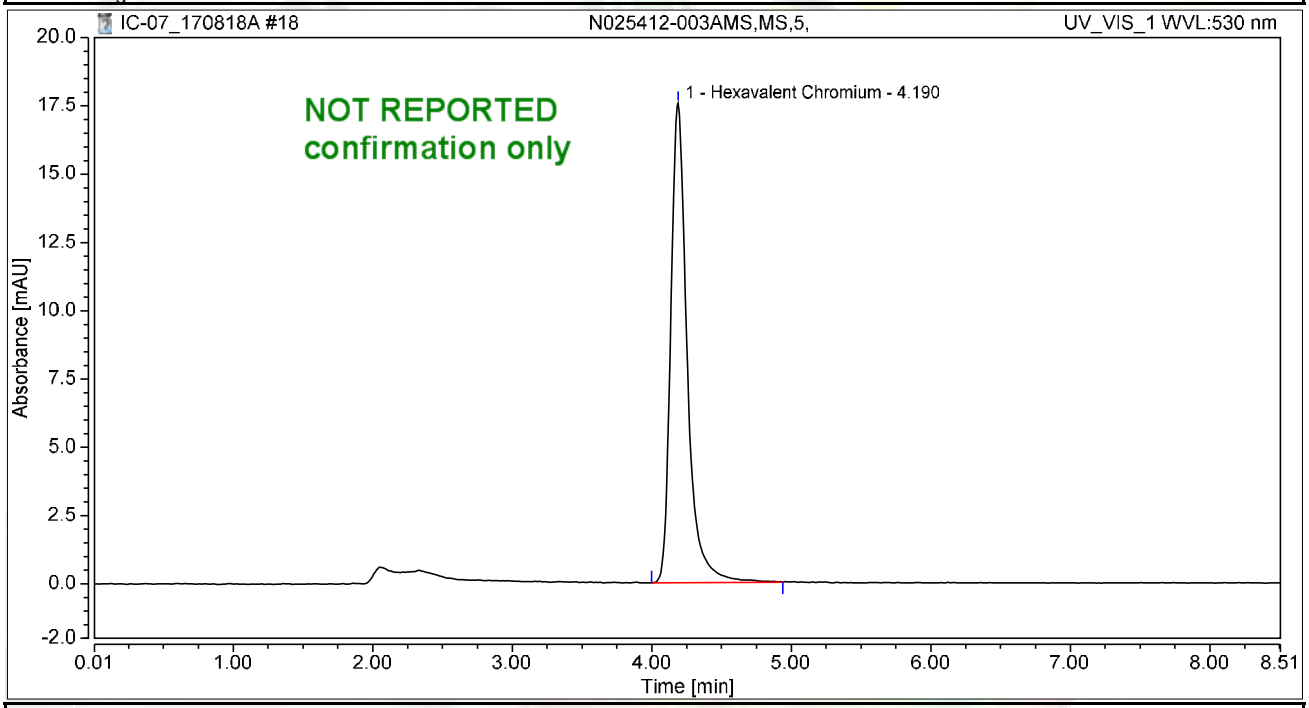
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	1.113	8.159	100.00	100.00	4.2256
Total:			**1.113**	**8.159**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025412-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

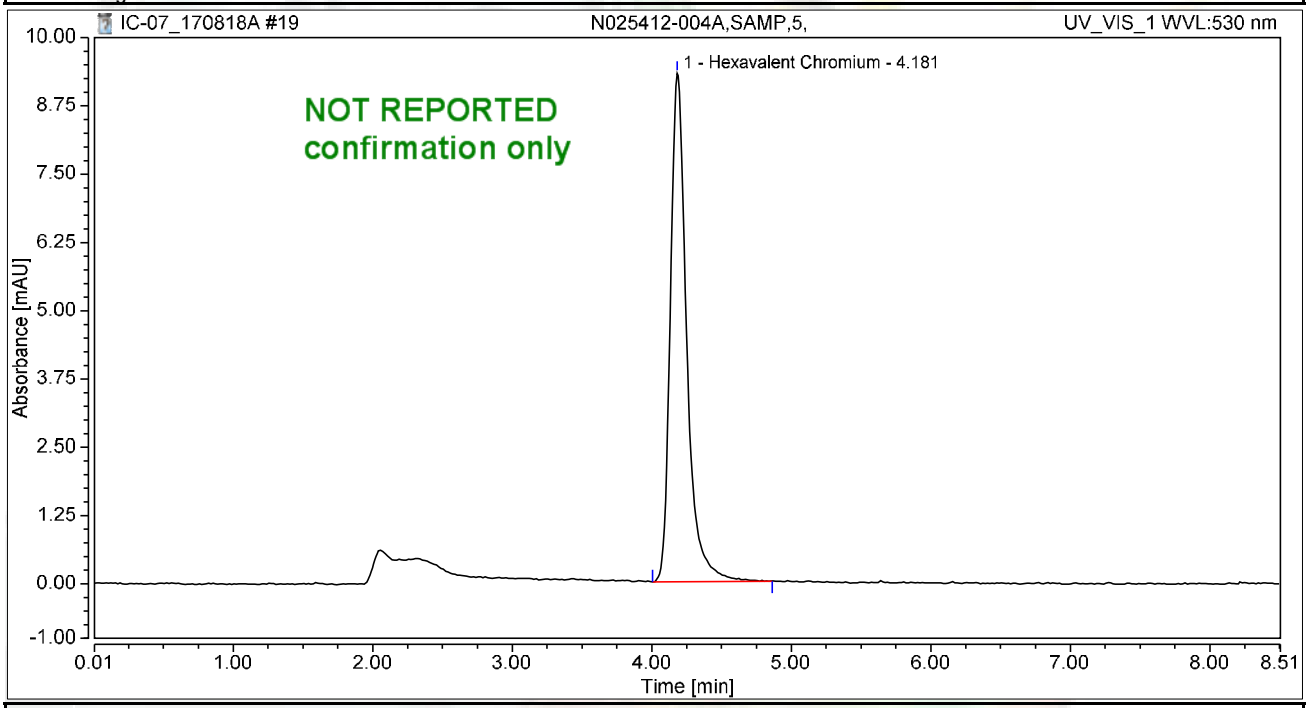
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	2.388	17.545	100.00	100.00	9.0664
Total:			**2.388**	**17.545**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025412-004A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

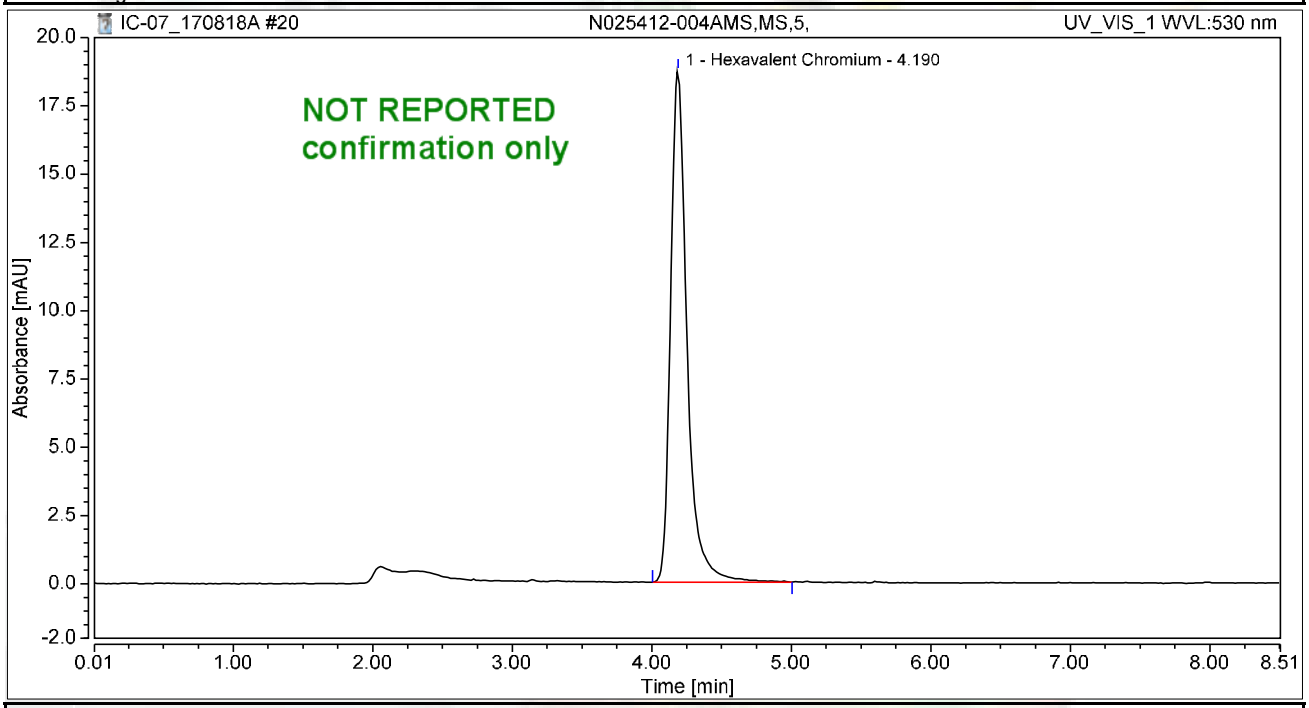
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	1.265	9.307	100.00	100.00	4.8021
Total:			**1.265**	**9.307**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025412-004AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

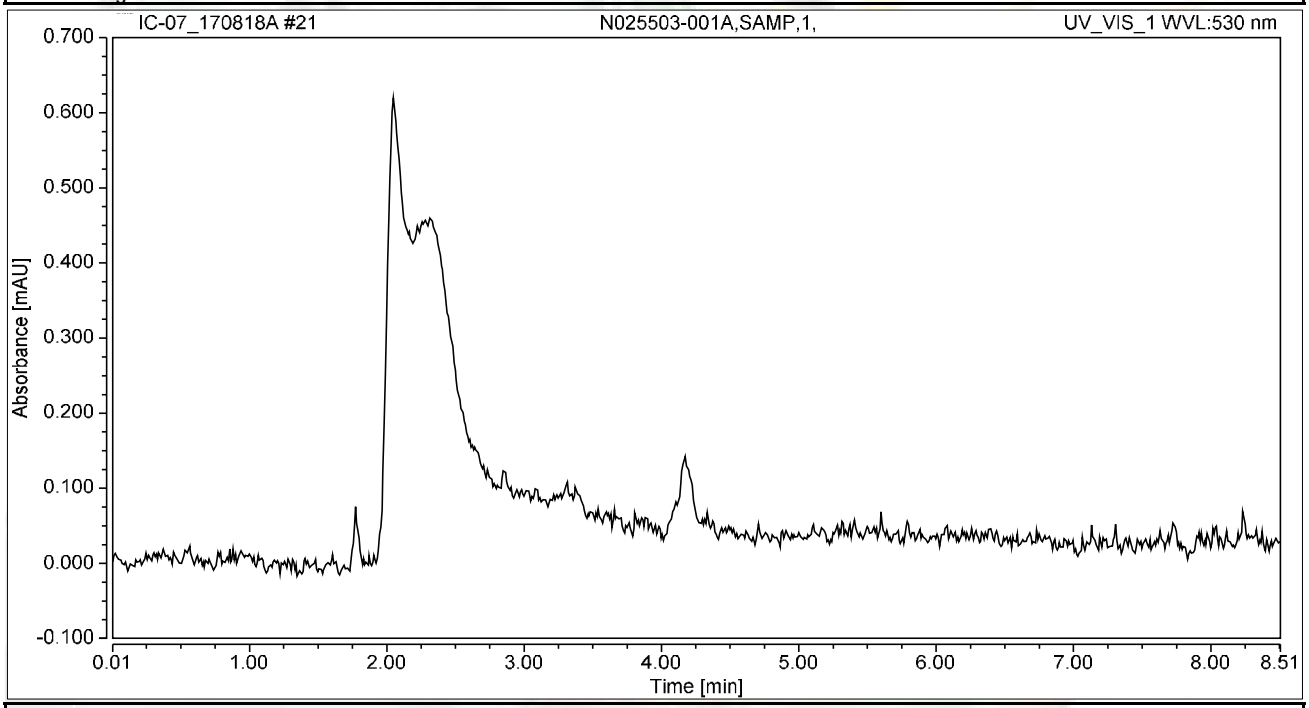
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	2.557	18.715	100.00	100.00	9.7066
Total:			**2.557**	**18.715**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

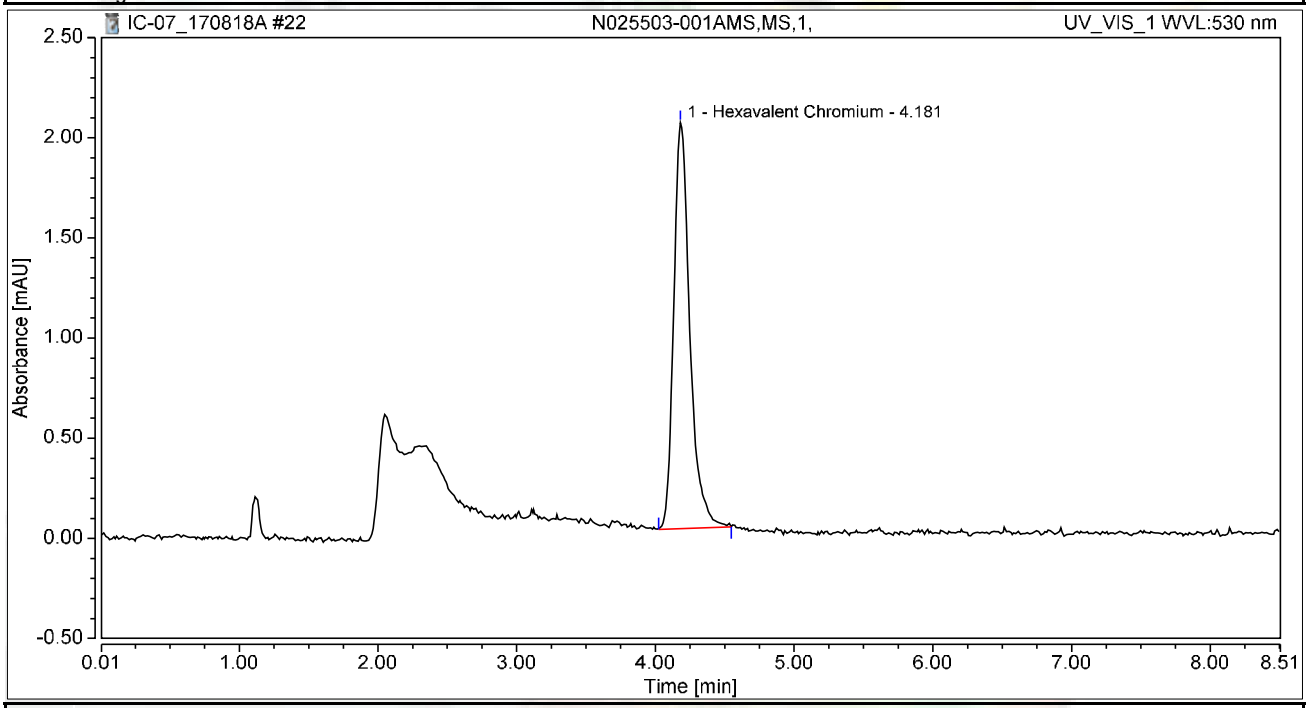
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

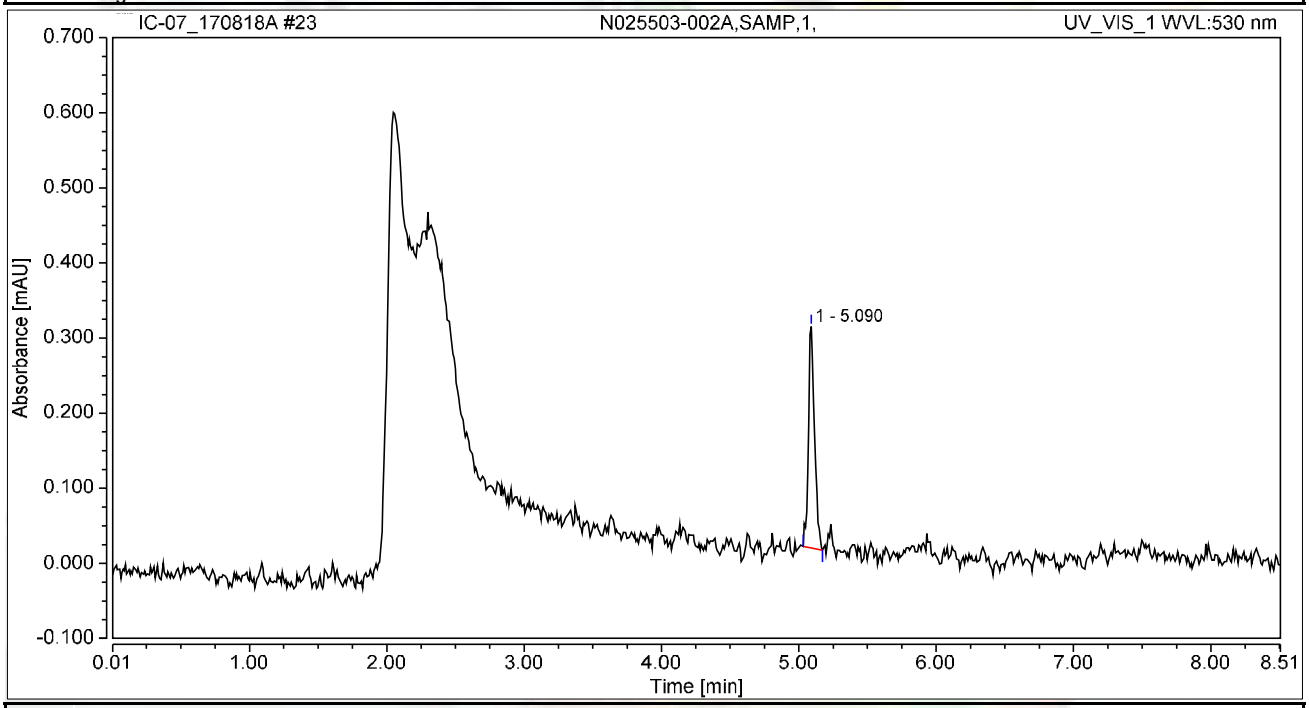
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.273	2.027	100.00	100.00	1.0355
Total:			**0.273**	**2.027**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

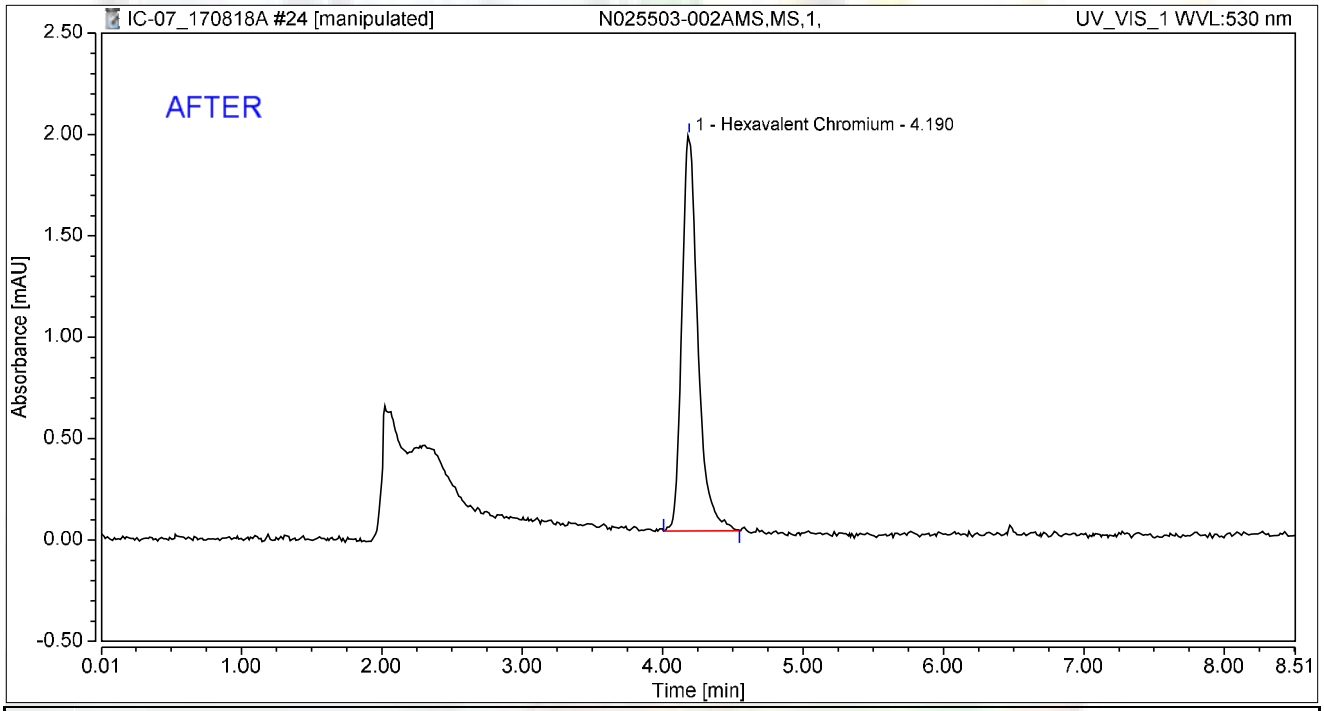
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.090	0.015	0.295	100.00	100.00	n.a.
Total:			**0.015**	**0.295**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-002AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.258	1.951	100.00	100.00	0.9798
Total:			**0.258**	**1.951**	**100.00**	**100.00**	

rba 8/22/2017

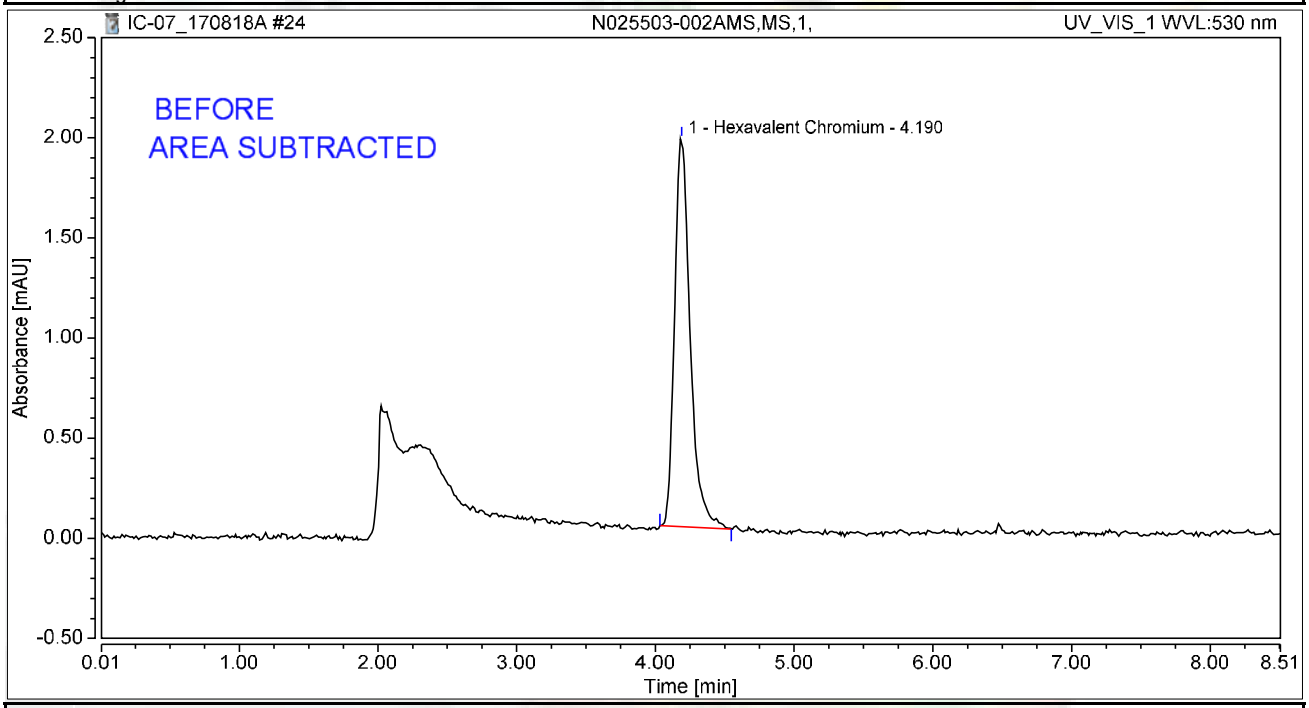
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-002AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 11:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.253	1.938	100.00	100.00	0.9602
Total:			**0.253**	**1.938**	**100.00**	**100.00**	

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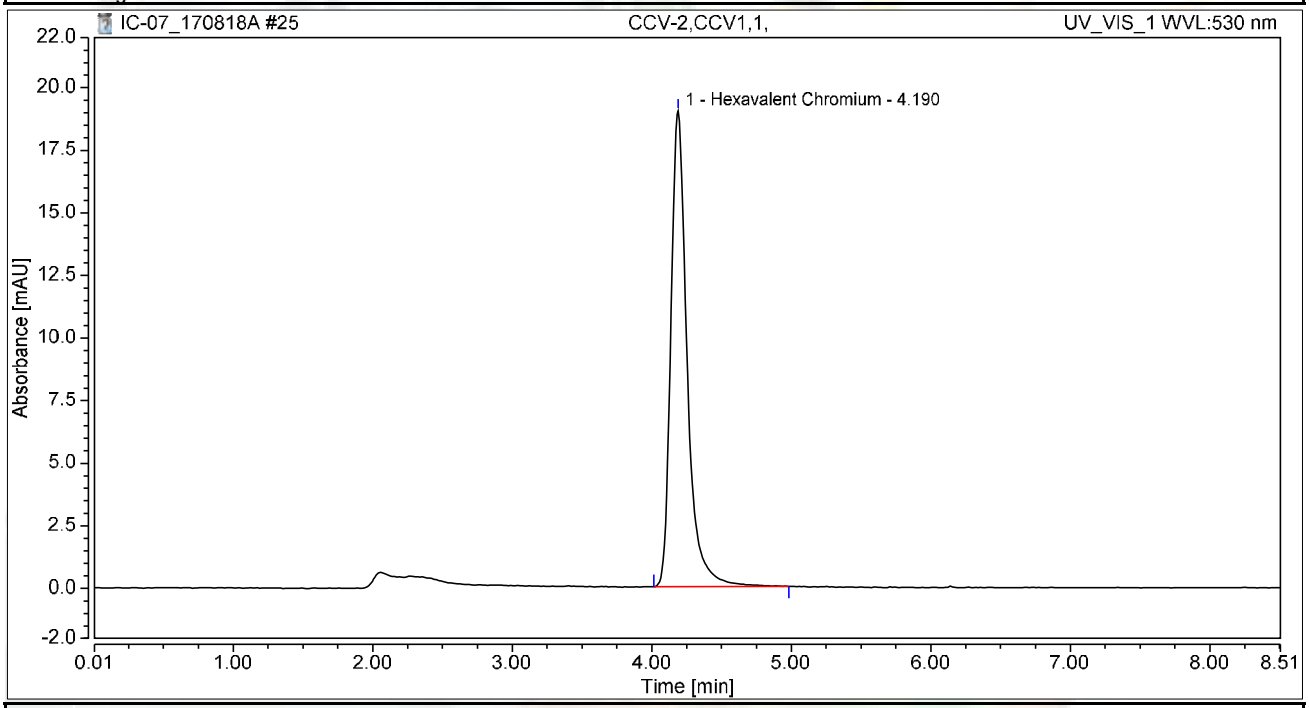
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 12:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

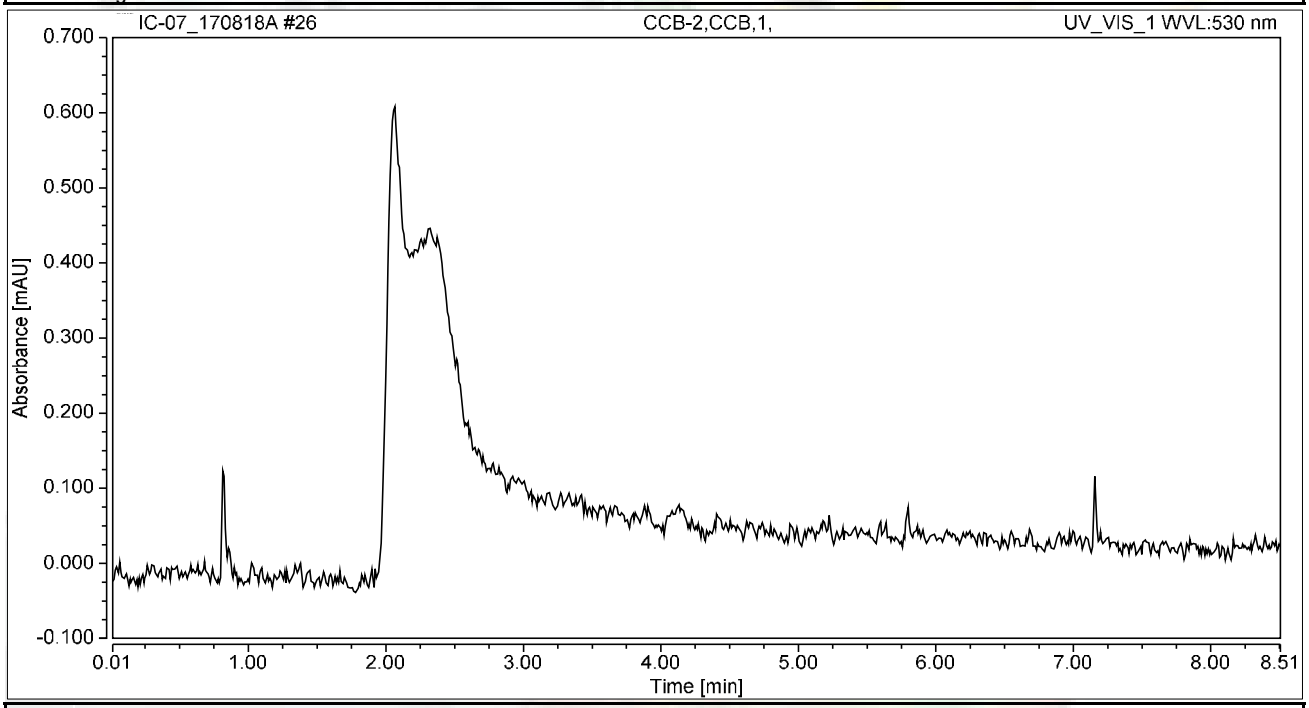
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	2.566	19.000	100.00	100.00	9.7431
Total:			**2.566**	**19.000**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 12:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

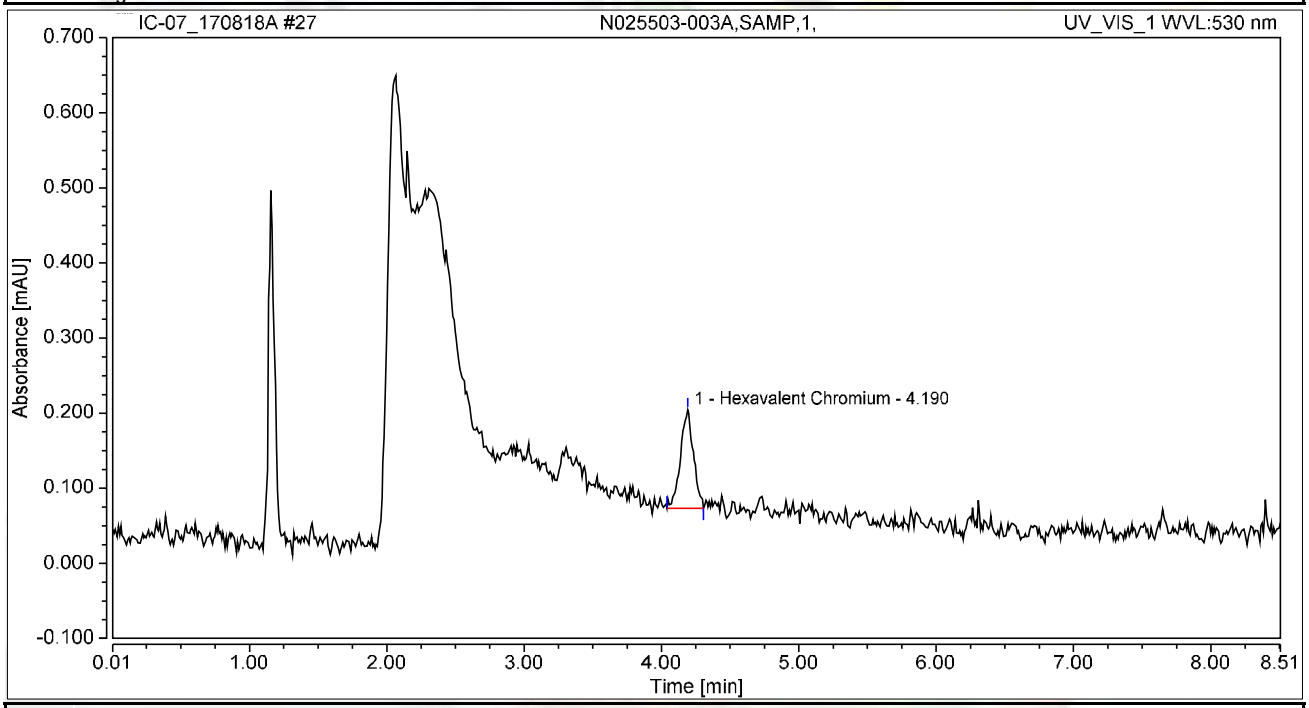
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 12:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

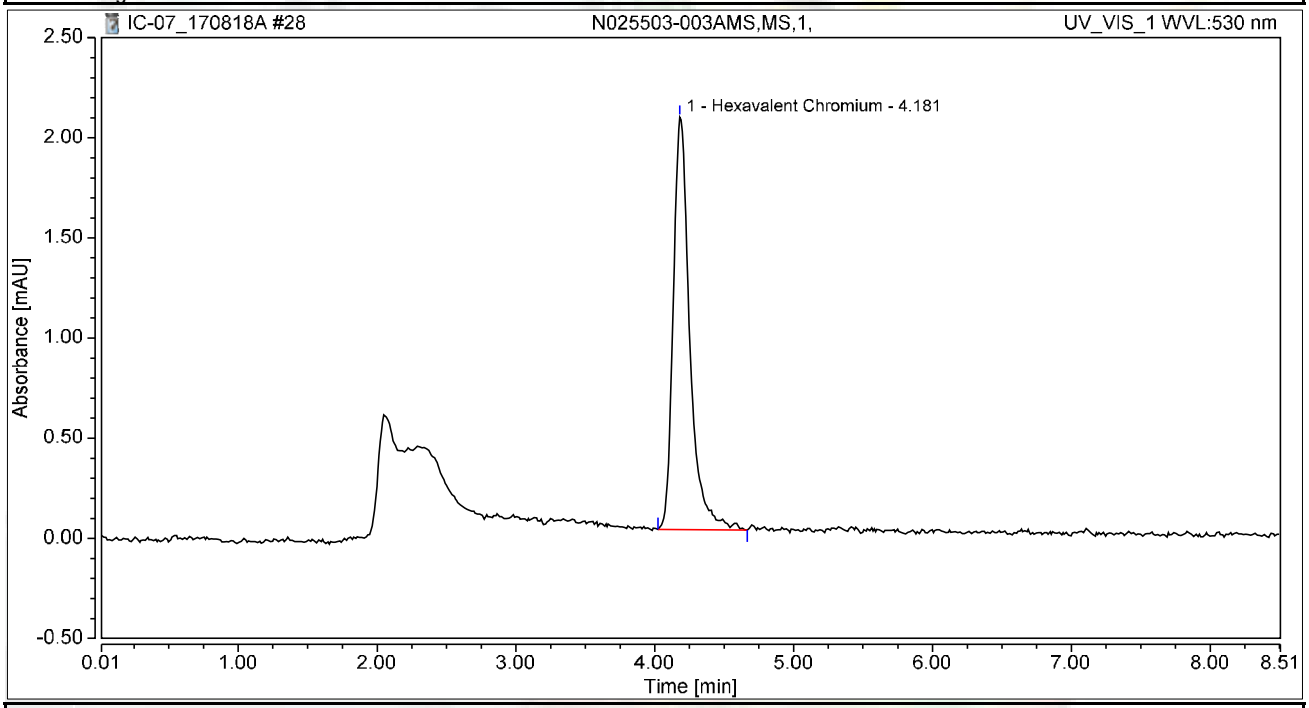
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.014	0.131	100.00	100.00	0.0544
Total:			**0.014**	**0.131**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-003AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 12:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

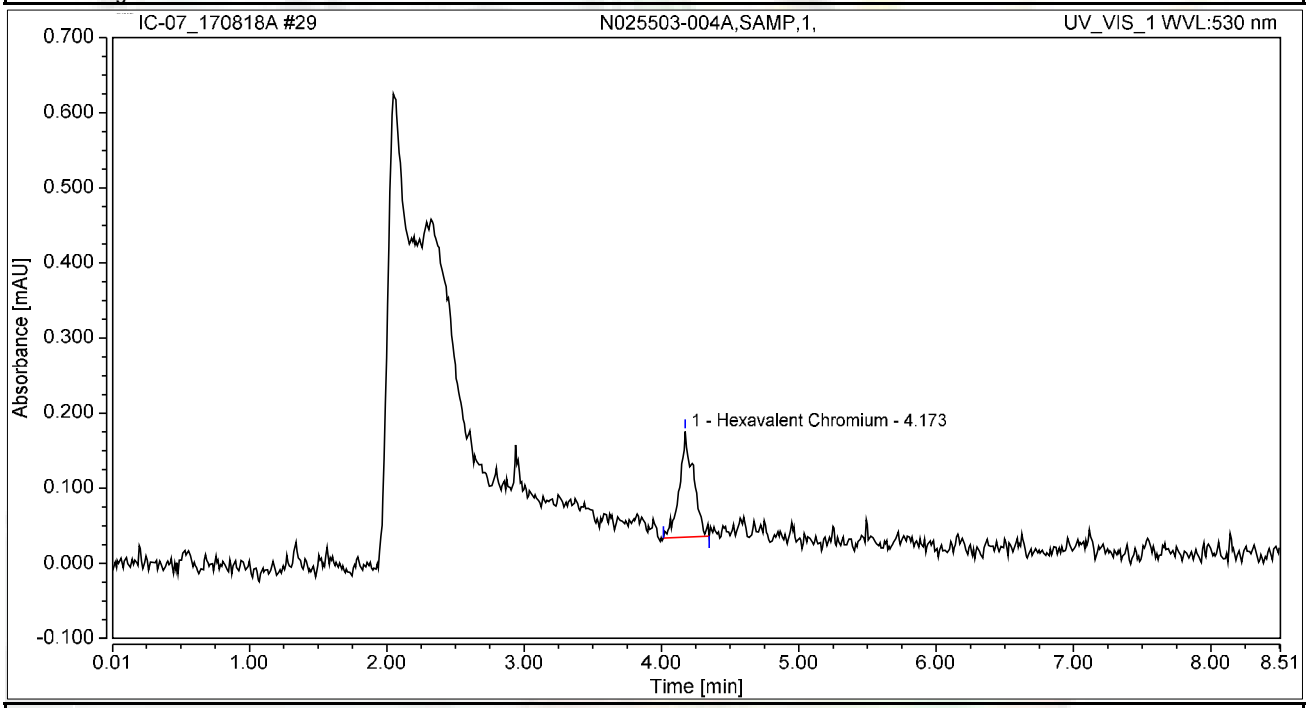
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.285	2.059	100.00	100.00	1.0814
Total:			**0.285**	**2.059**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 12:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

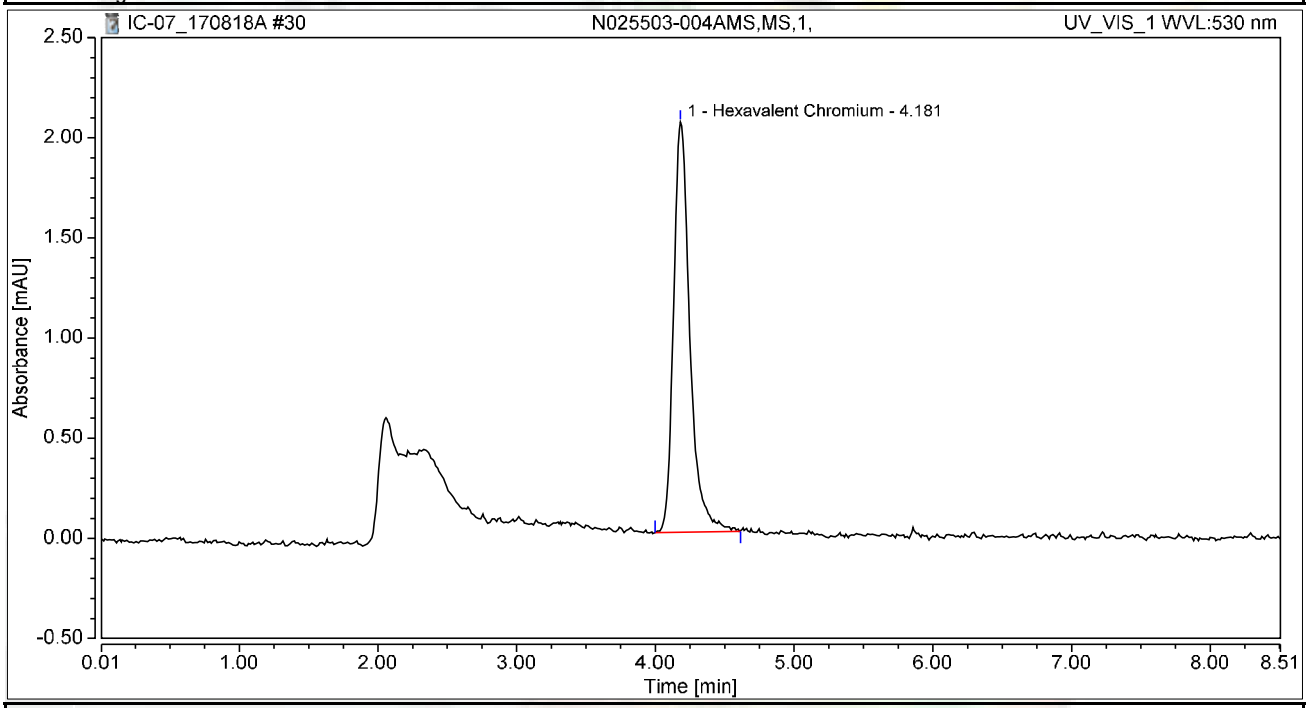
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.173	0.017	0.141	100.00	100.00	0.0633
Total:			**0.017**	**0.141**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 12:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

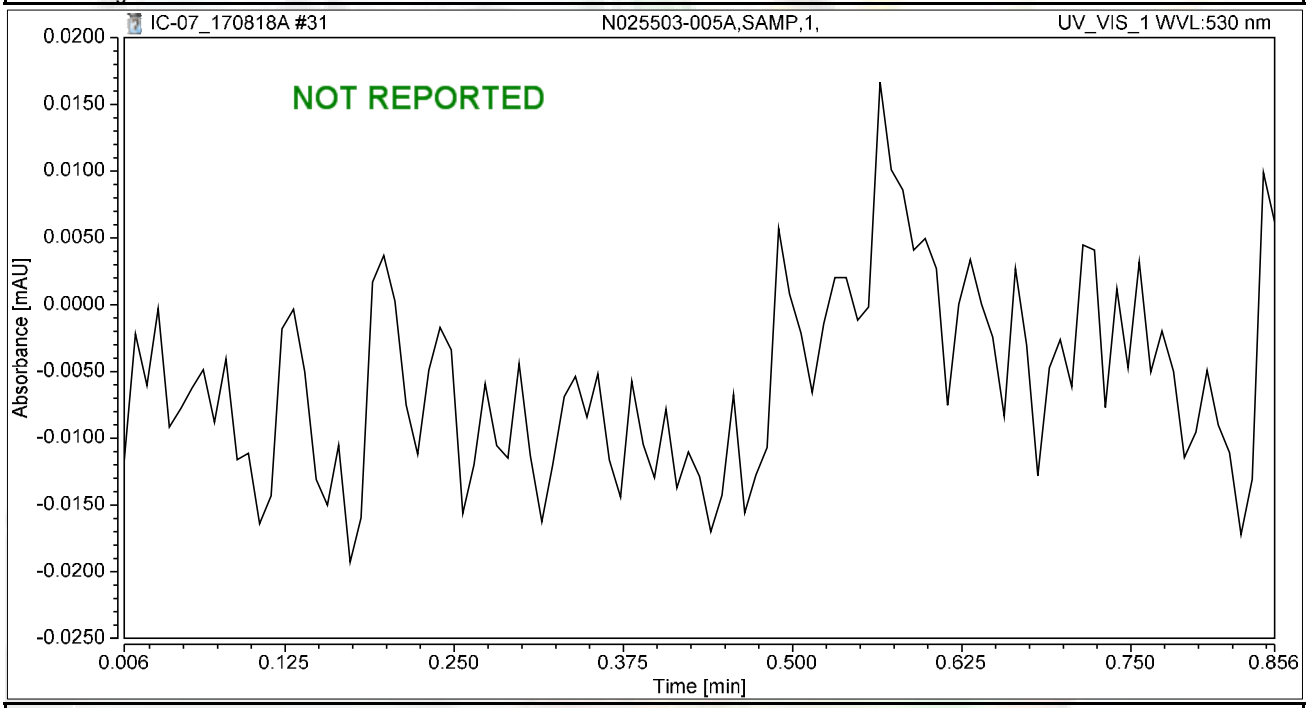
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.279	2.048	100.00	100.00	1.0601
Total:			**0.279**	**2.048**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005A,SAMP,1,**	*Run Time (min):*	**0.85**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

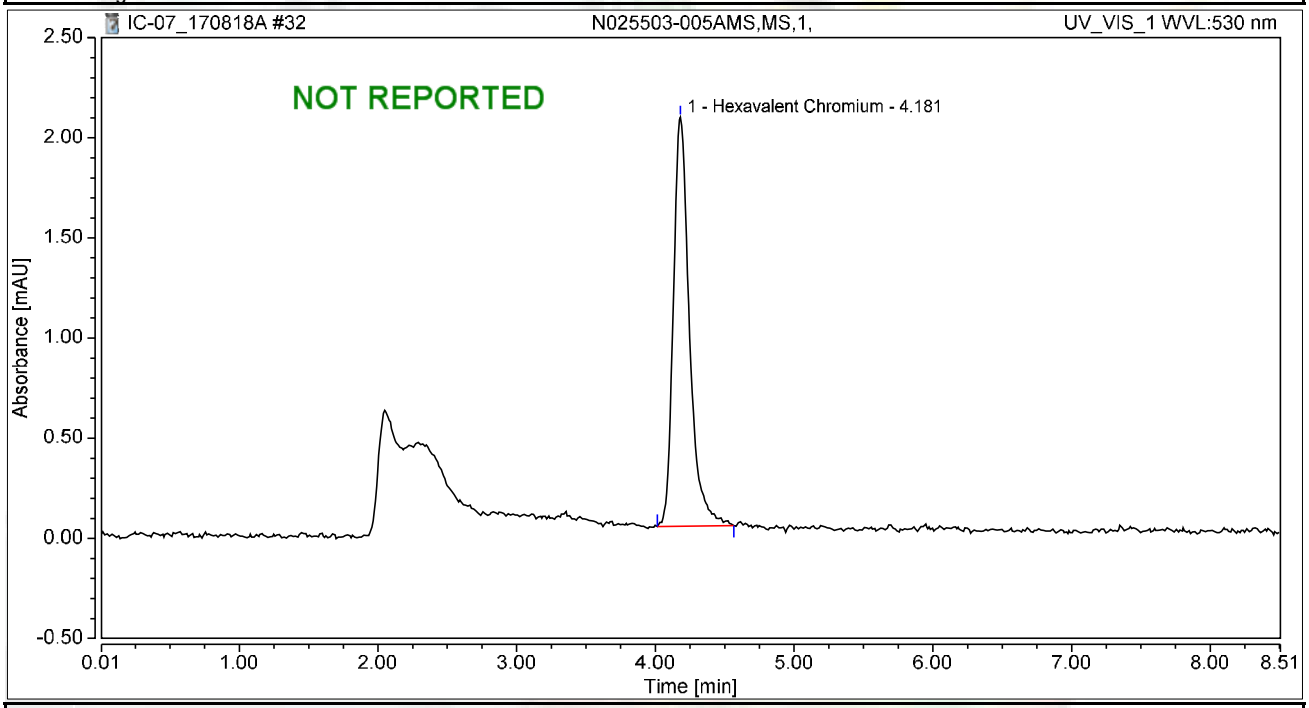
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

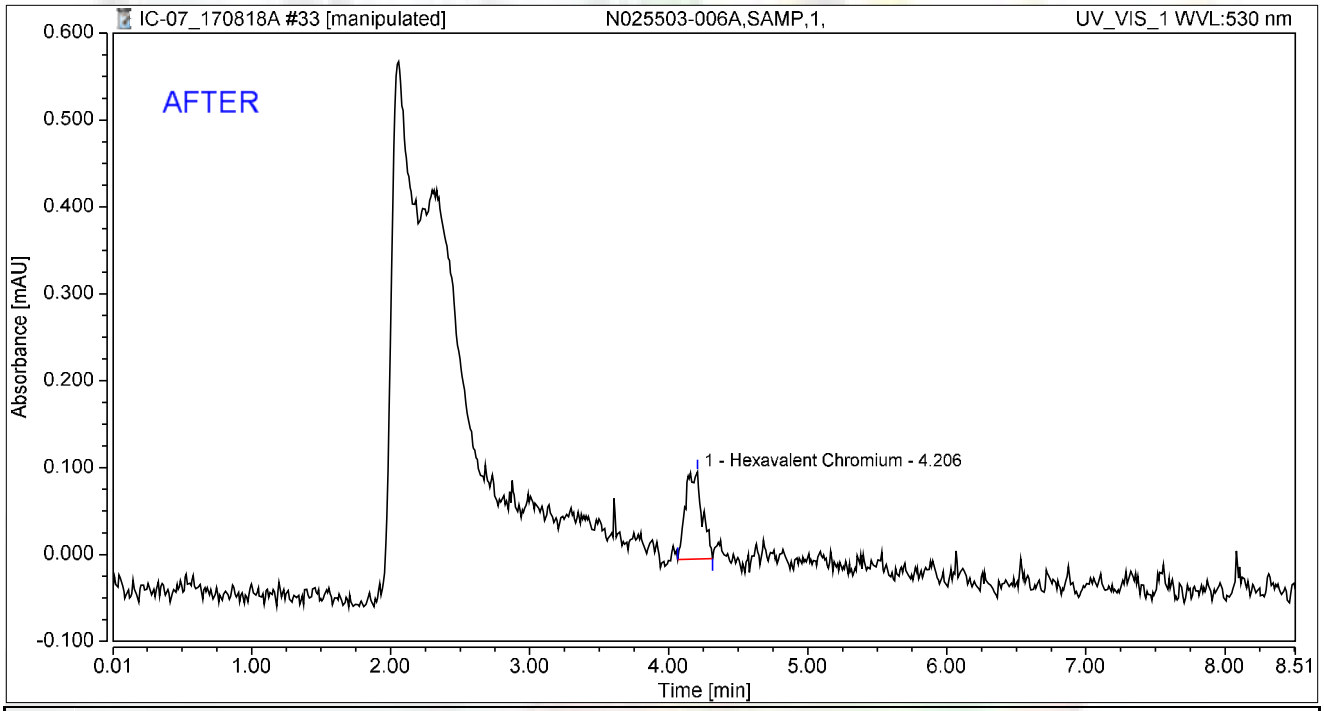
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.275	2.041	100.00	100.00	1.0442
Total:			**0.275**	**2.041**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.206	0.014	0.100	100.00	100.00	0.0534
Total:			**0.014**	**0.100**	**100.00**	**100.00**	

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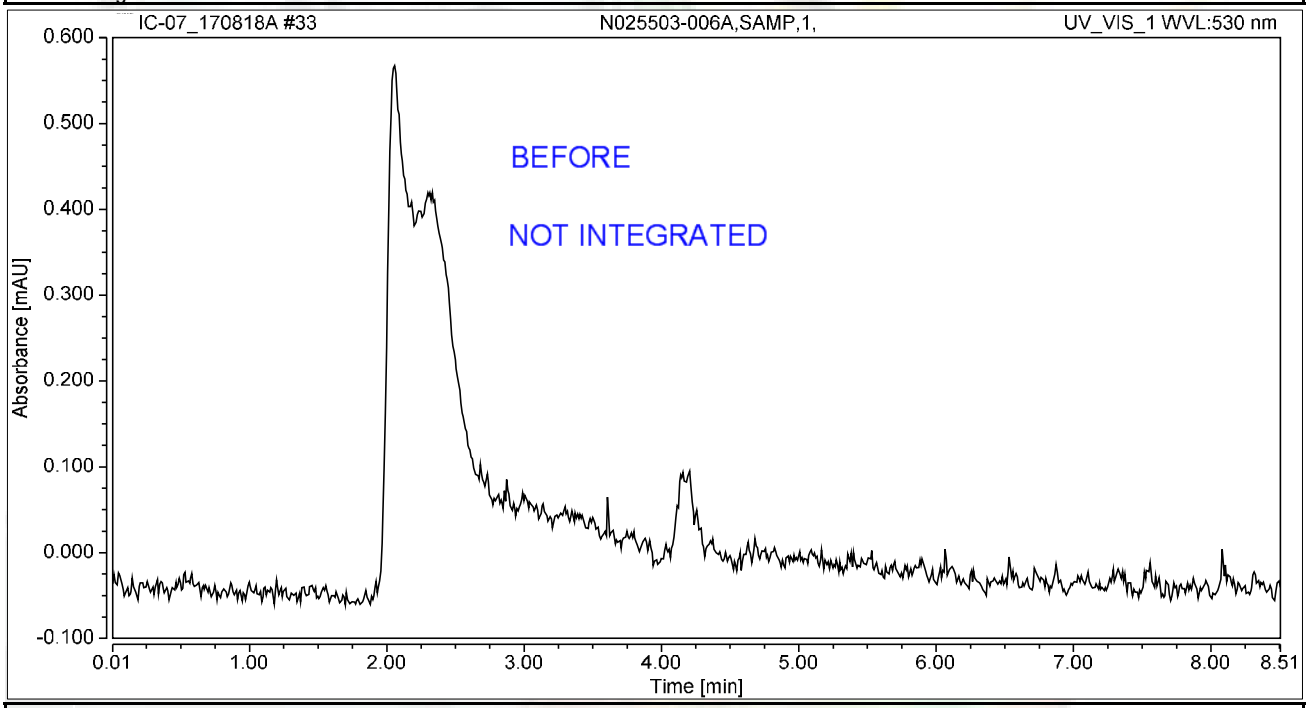
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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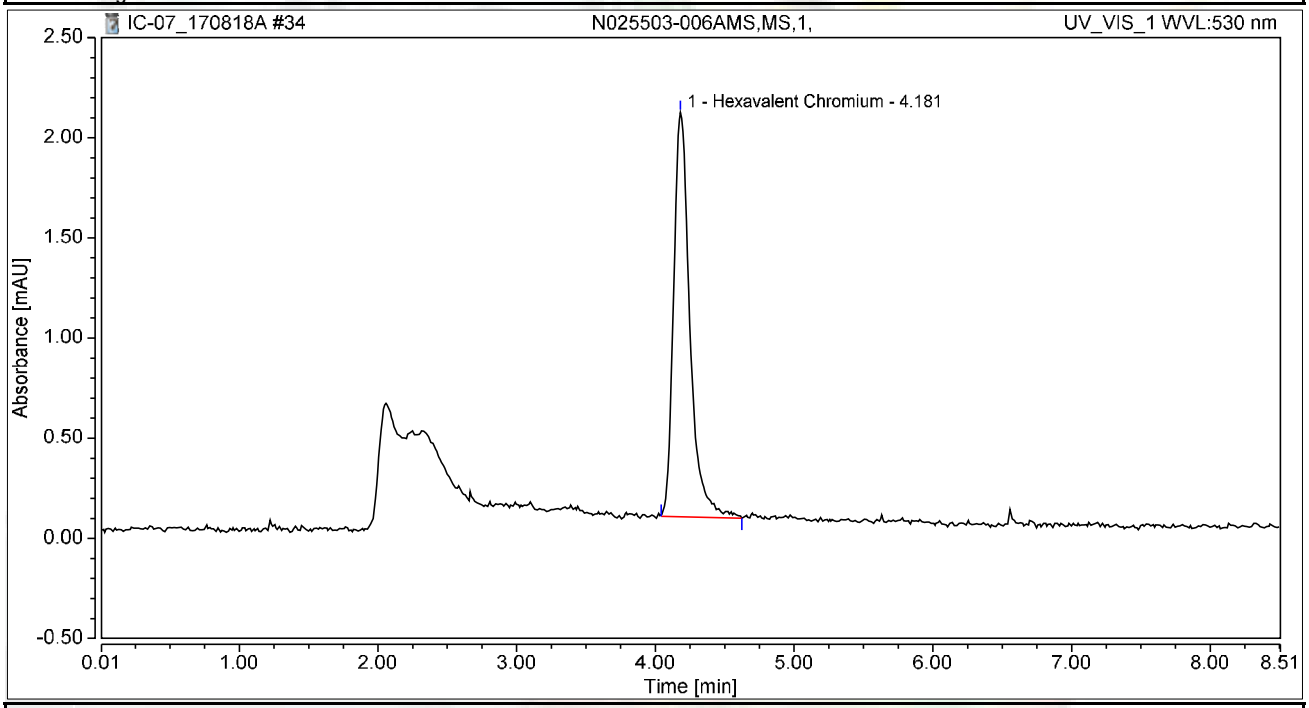
Chromatogram and Results

Injection Details

Injection Name:	**N025503-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

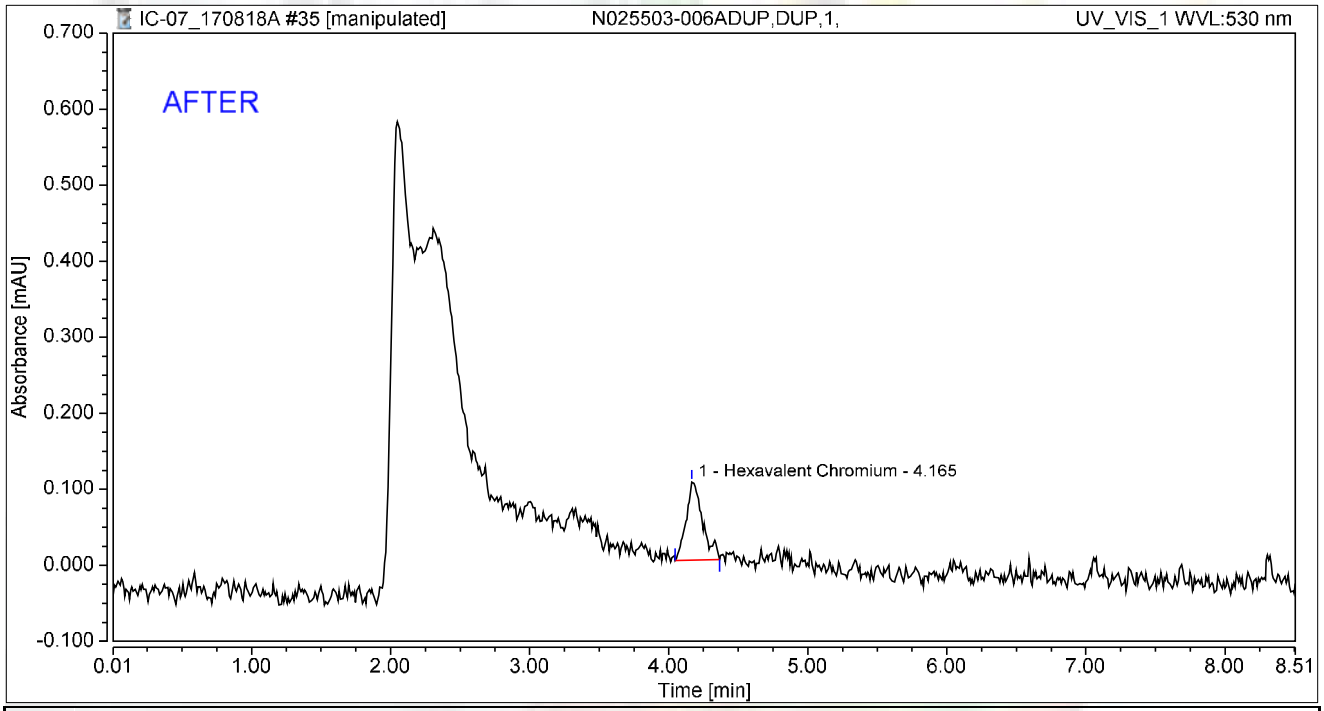
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.274	2.019	100.00	100.00	1.0417
Total:			**0.274**	**2.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-006ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.165	0.014	0.103	100.00	100.00	0.0541
Total:			**0.014**	**0.103**	**100.00**	**100.00**	

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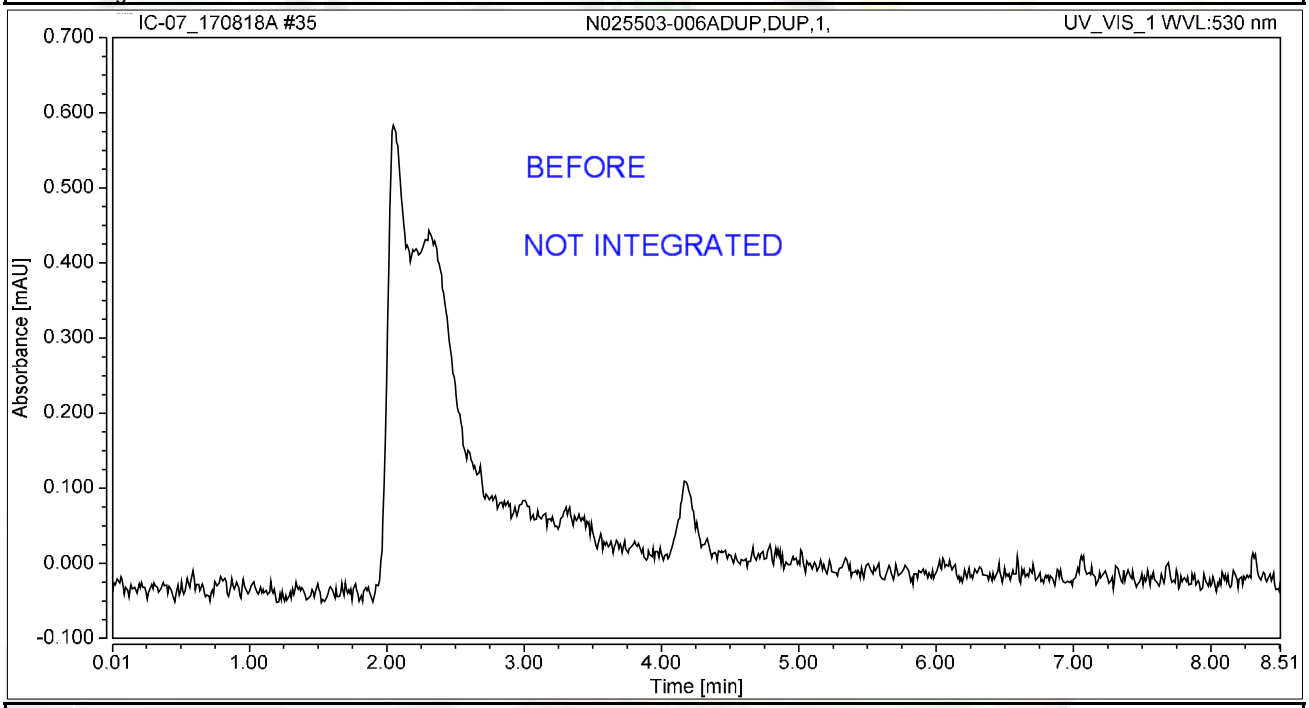
Reviewed by: 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-006ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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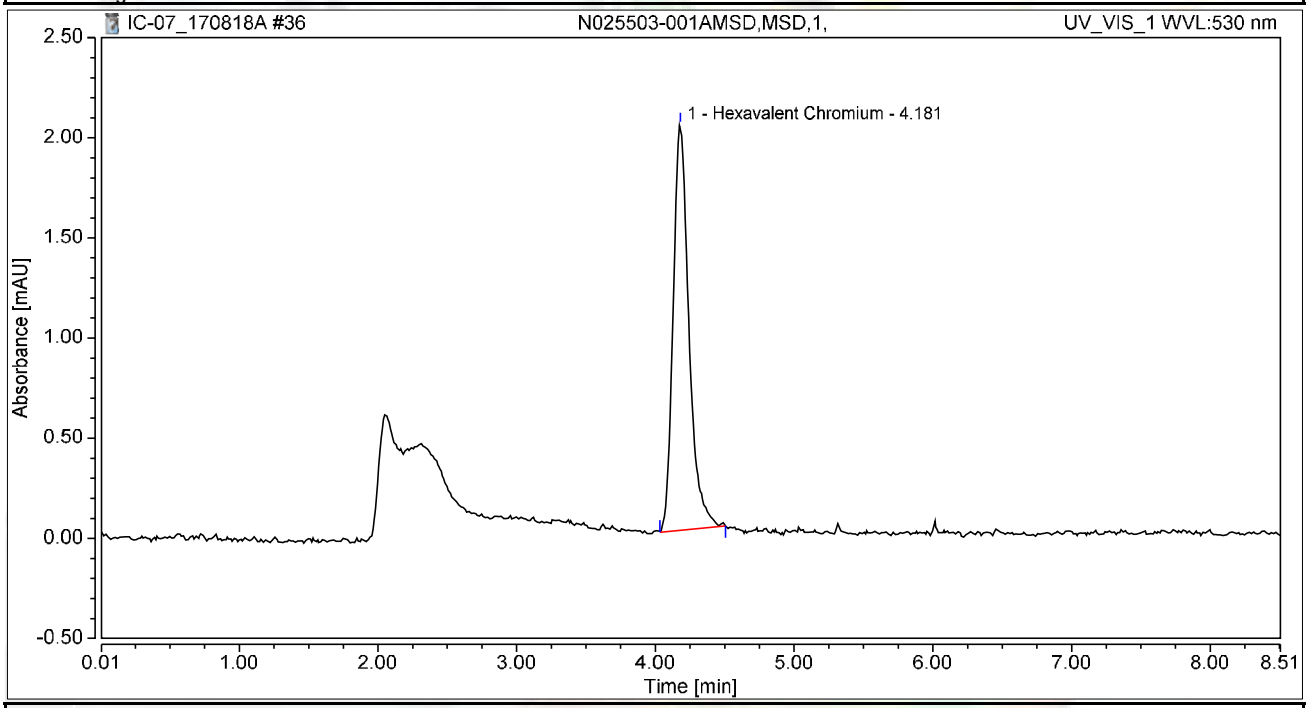
Chromatogram and Results

Injection Details

Injection Name:	**N025503-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

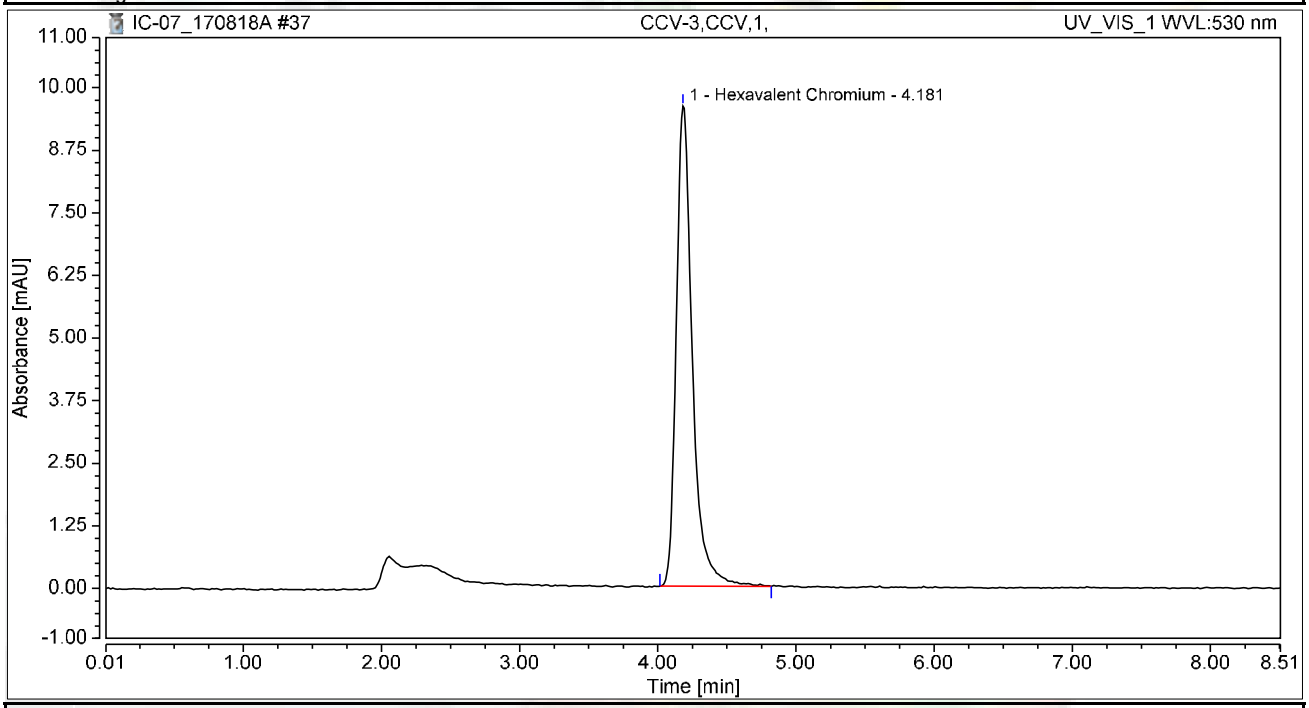
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.267	2.025	100.00	100.00	1.0124
Total:			**0.267**	**2.025**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

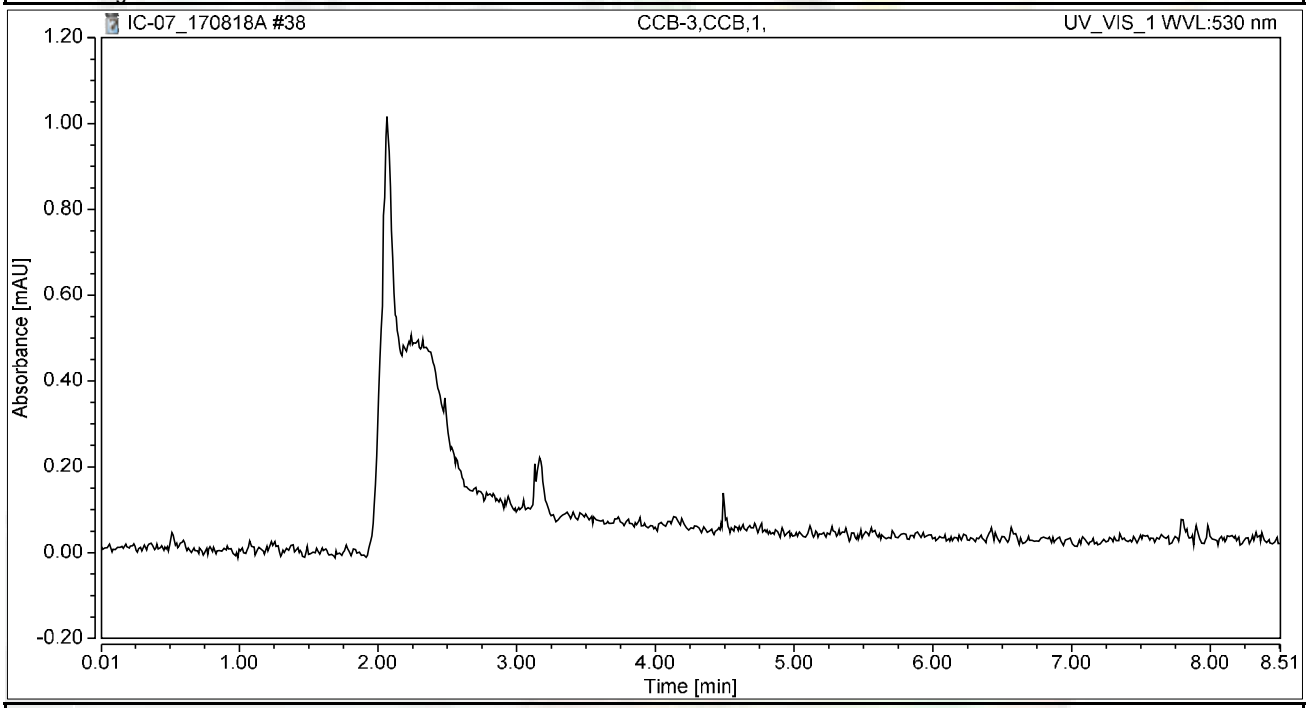
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	1.291	9.588	100.00	100.00	4.9016
Total:			**1.291**	**9.588**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

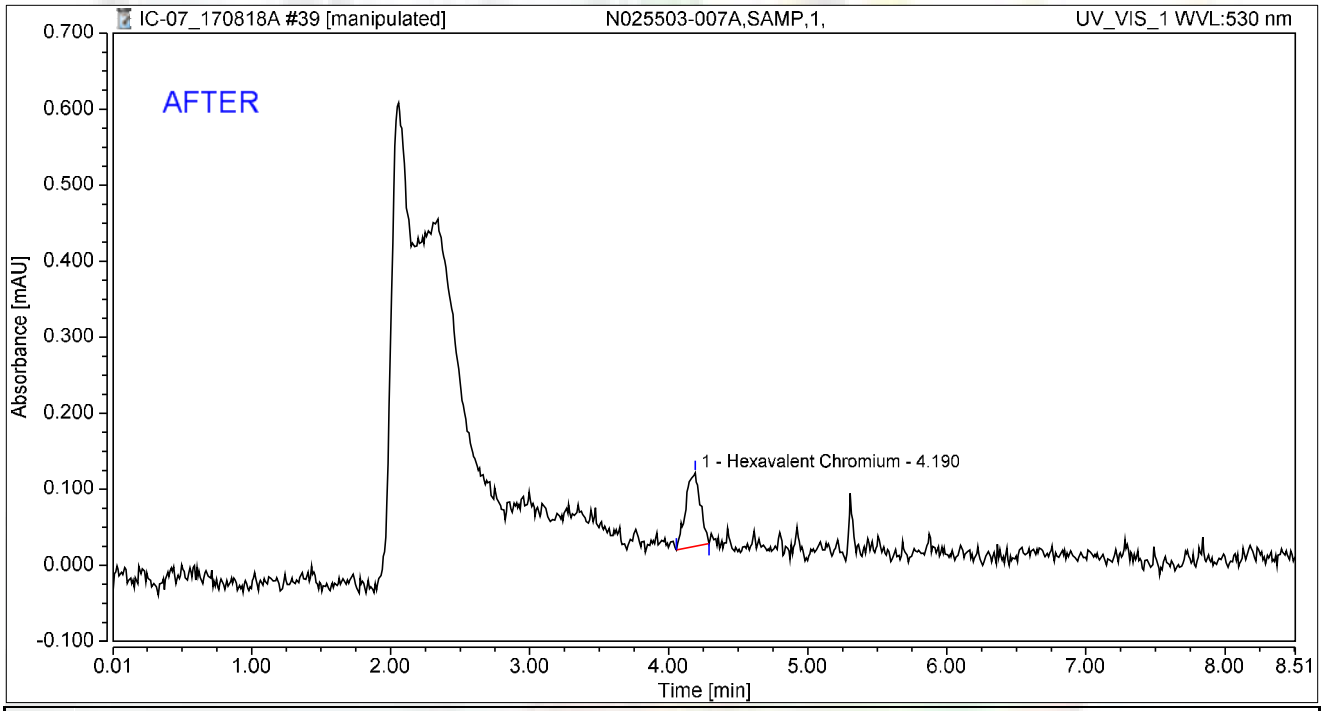
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.012	0.096	100.00	100.00	0.0449
Total:			**0.012**	**0.096**	**100.00**	**100.00**	

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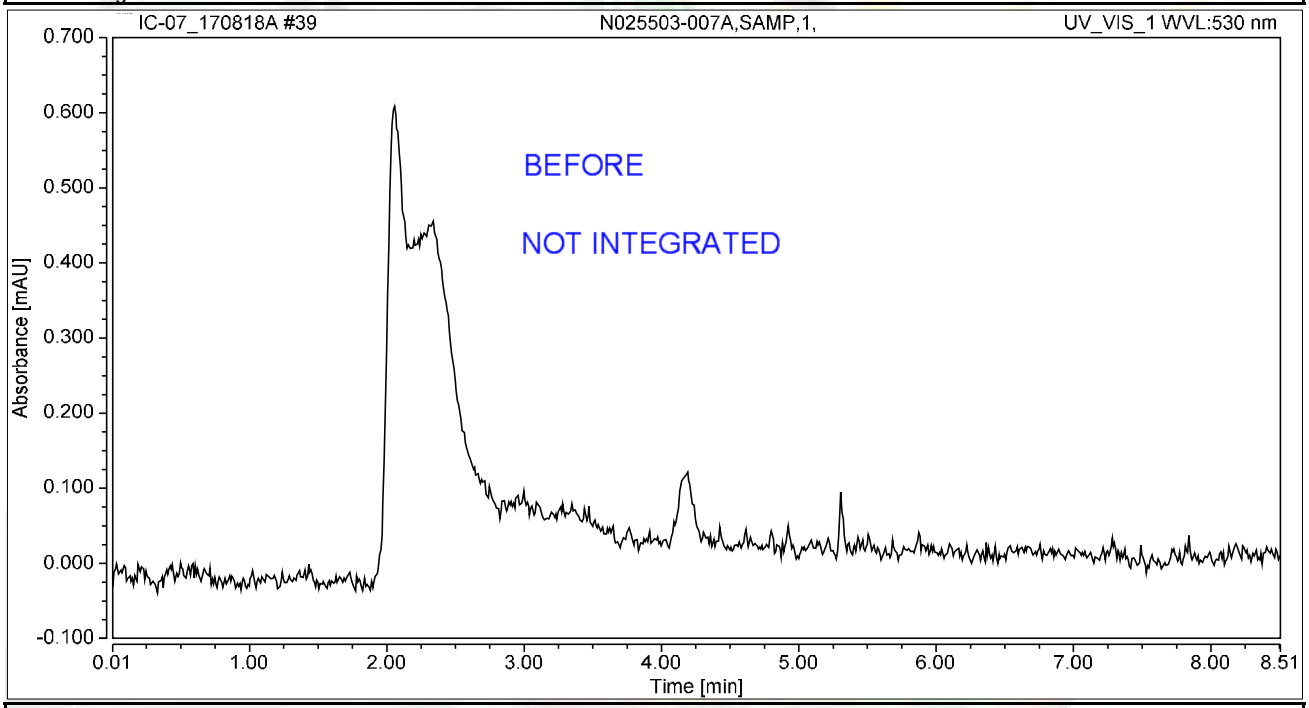
Reviewed by: 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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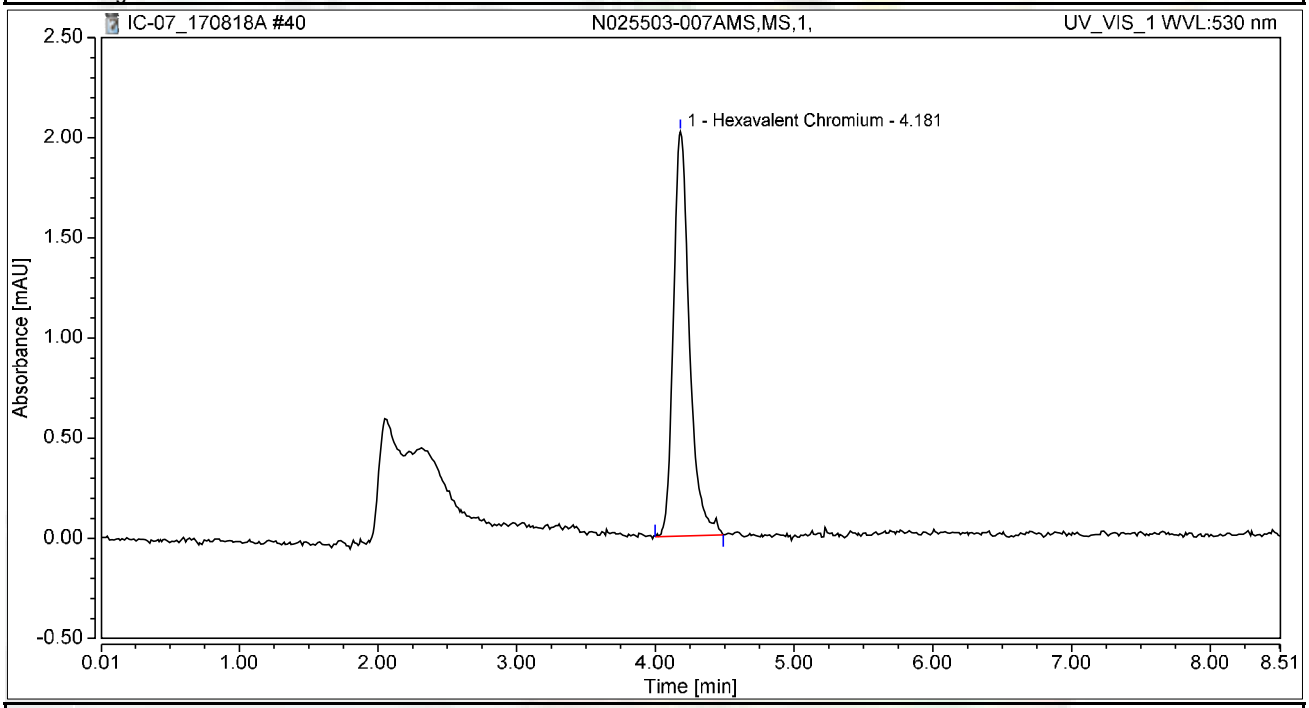
Chromatogram and Results

Injection Details

Injection Name:	**N025503-007AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

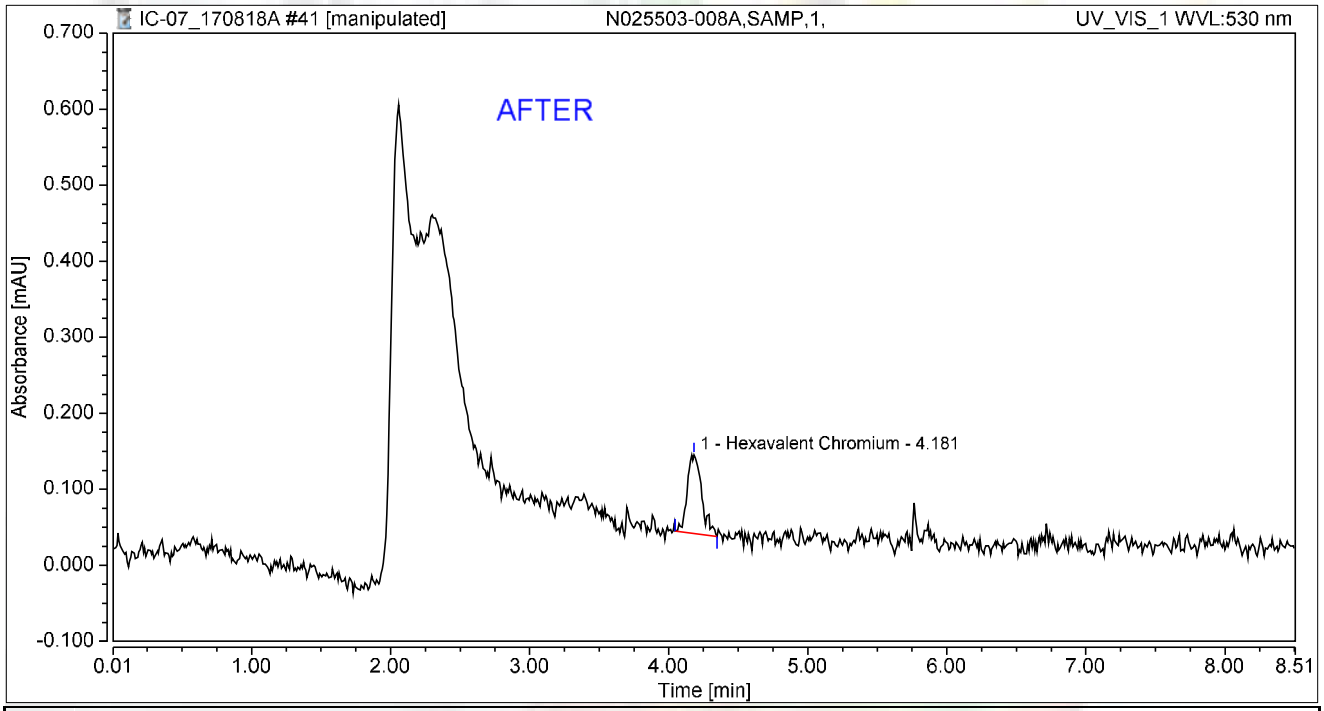
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.271	2.019	100.00	100.00	1.0287
Total:			**0.271**	**2.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-008A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.013	0.103	100.00	100.00	0.0475
Total:			**0.013**	**0.103**	**100.00**	**100.00**	

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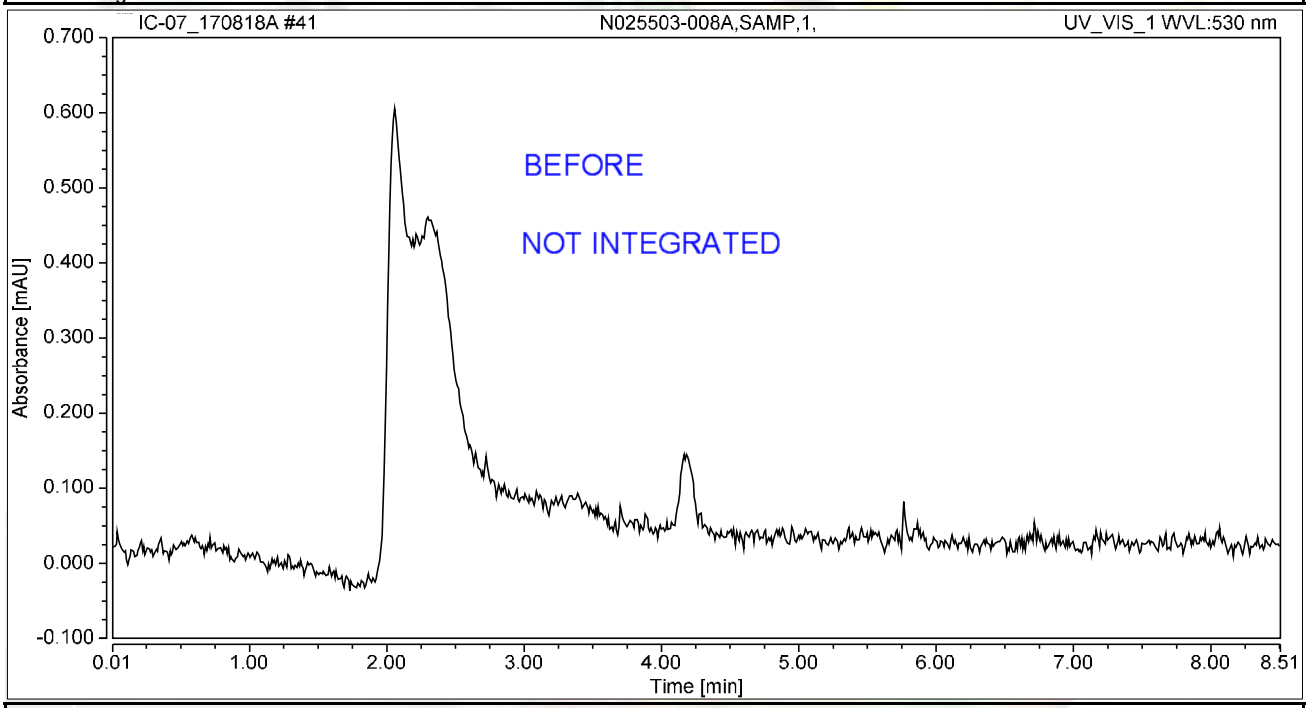
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-008A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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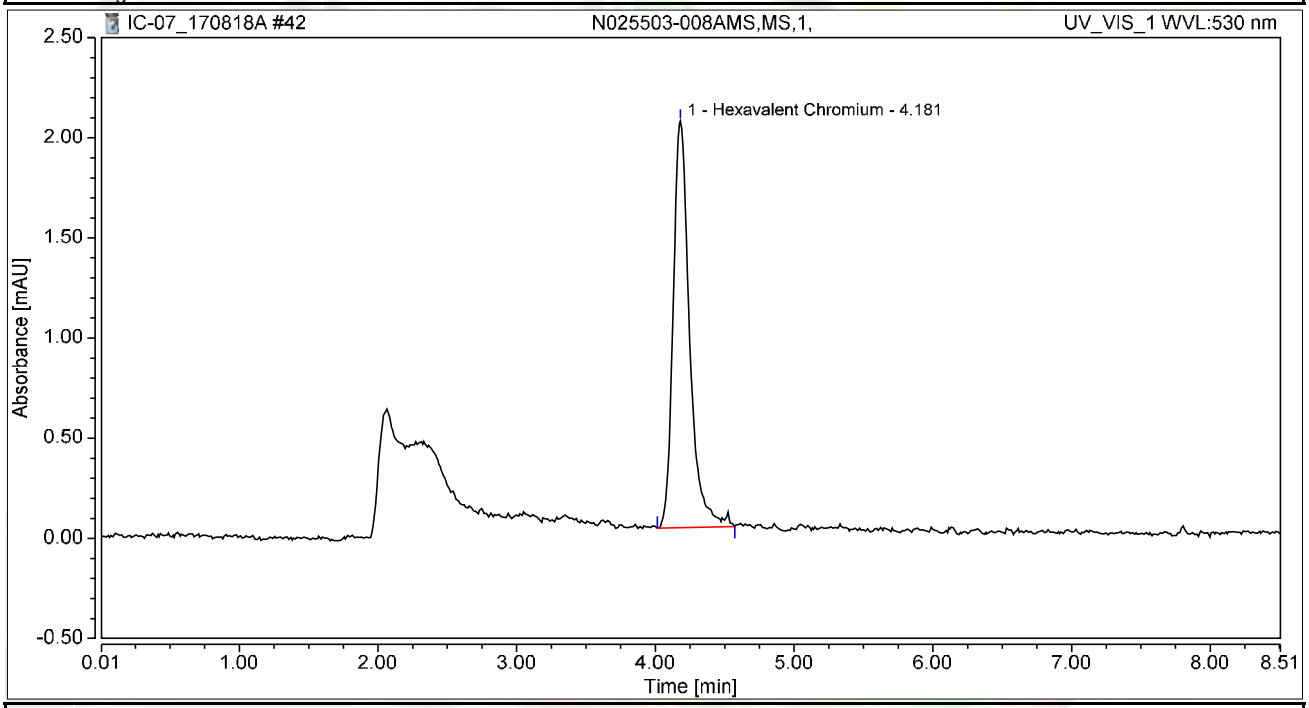
Chromatogram and Results

Injection Details

Injection Name:	**N025503-008AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

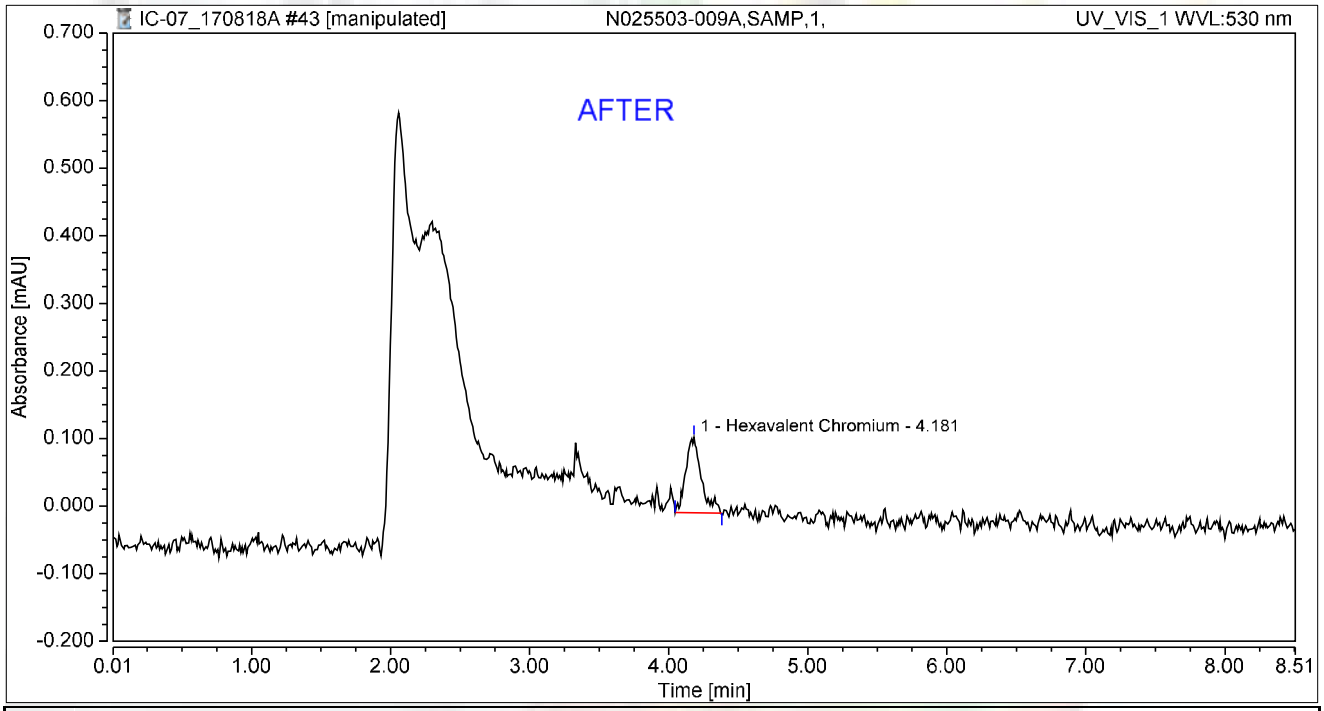
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.279	2.030	100.00	100.00	1.0595
Total:			**0.279**	**2.030**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.014	0.111	100.00	100.00	0.0543
Total:			**0.014**	**0.111**	**100.00**	**100.00**	

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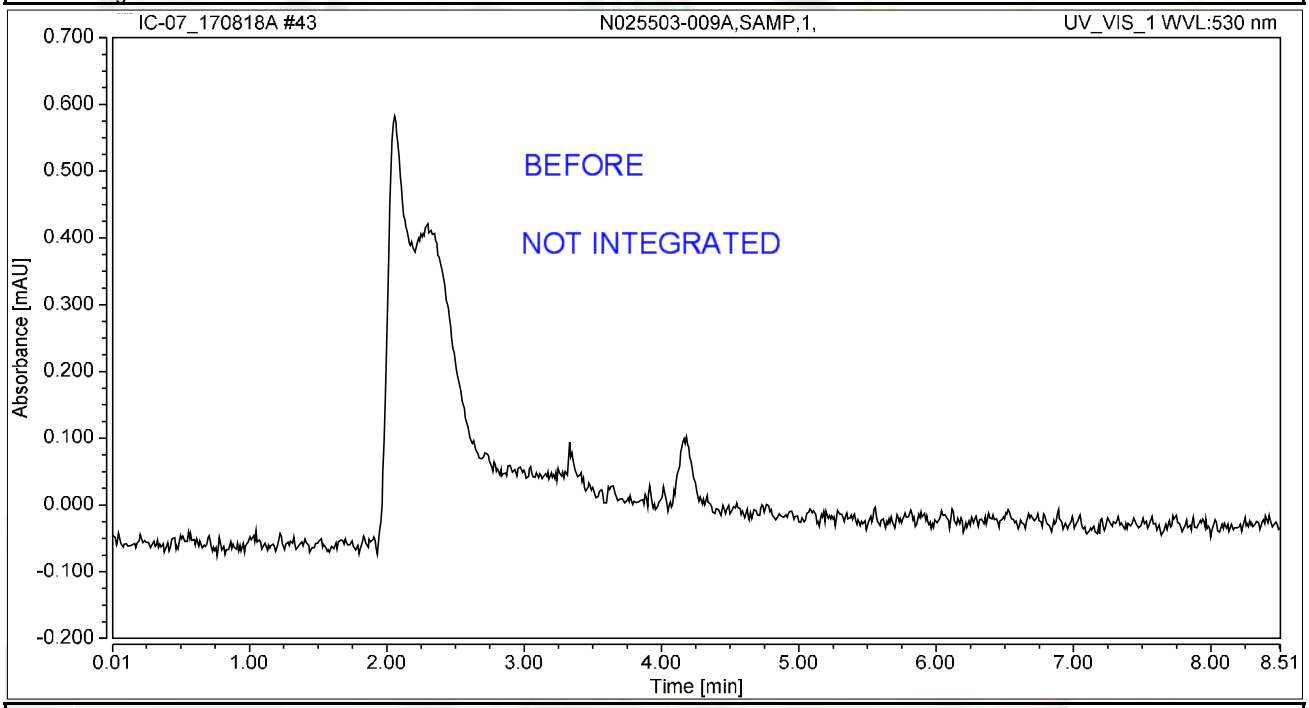
Chromatogram and Results

Injection Details

Injection Name:	**N025503-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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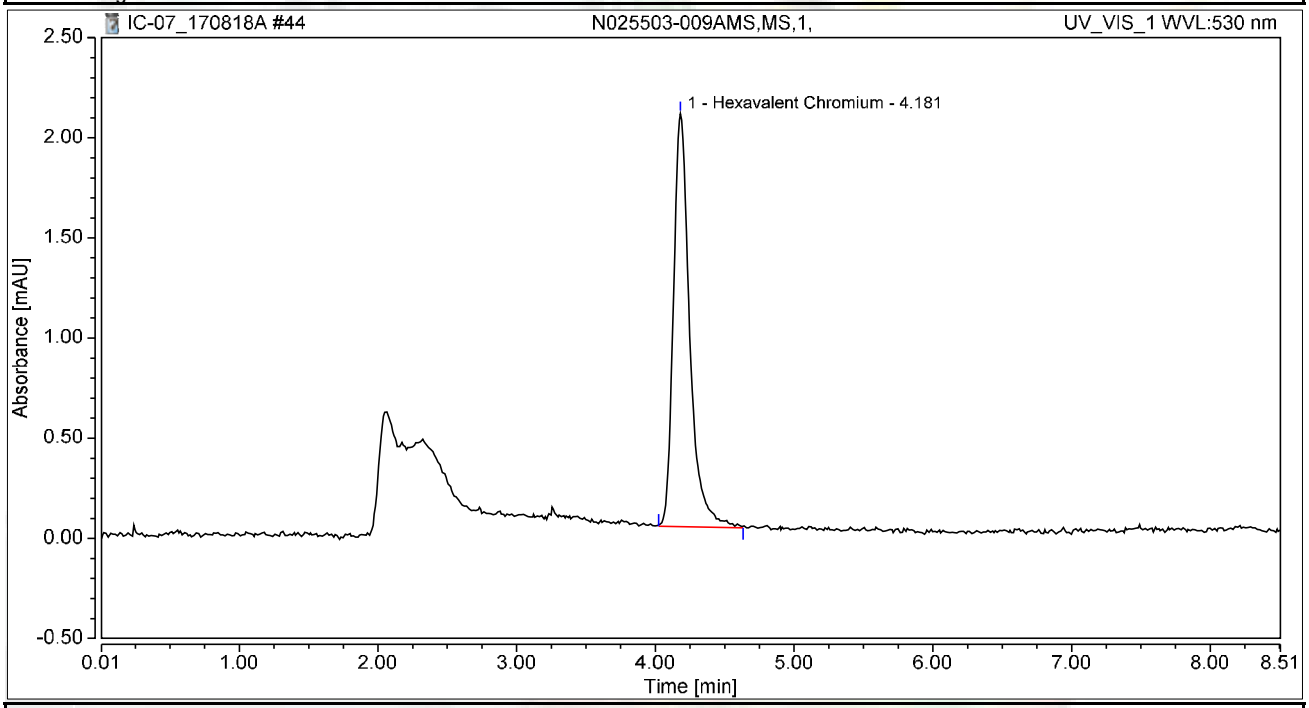
Chromatogram and Results

Injection Details

Injection Name:	**N025503-009AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

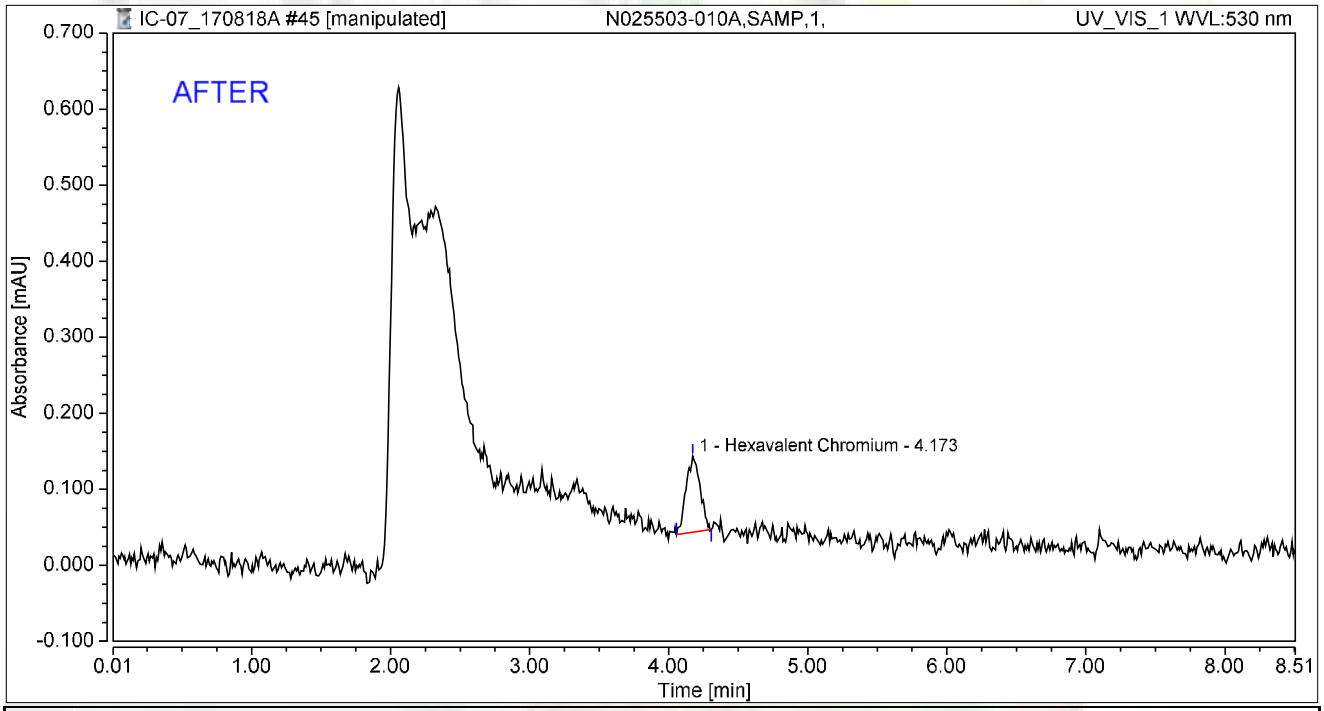
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.280	2.061	100.00	100.00	1.0641
Total:			**0.280**	**2.061**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-010A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.173	0.012	0.100	100.00	100.00	0.0449
Total:			**0.012**	**0.100**	**100.00**	**100.00**	

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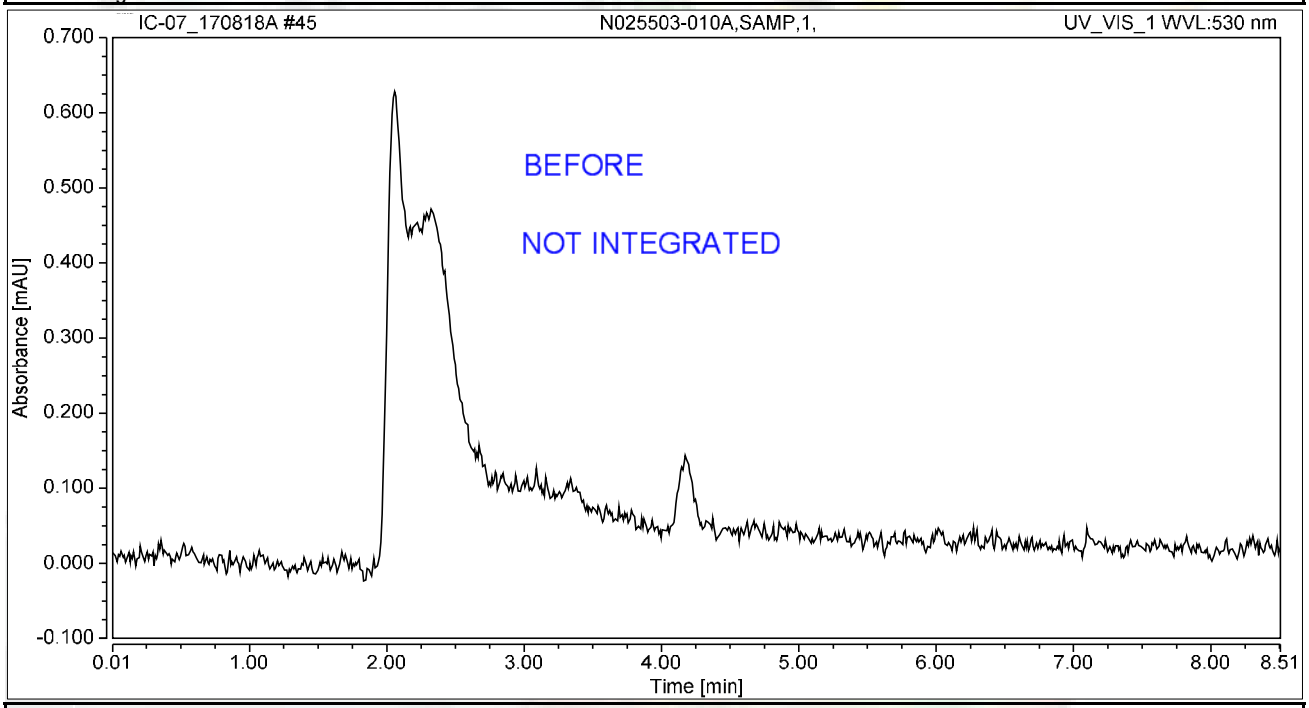
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-010A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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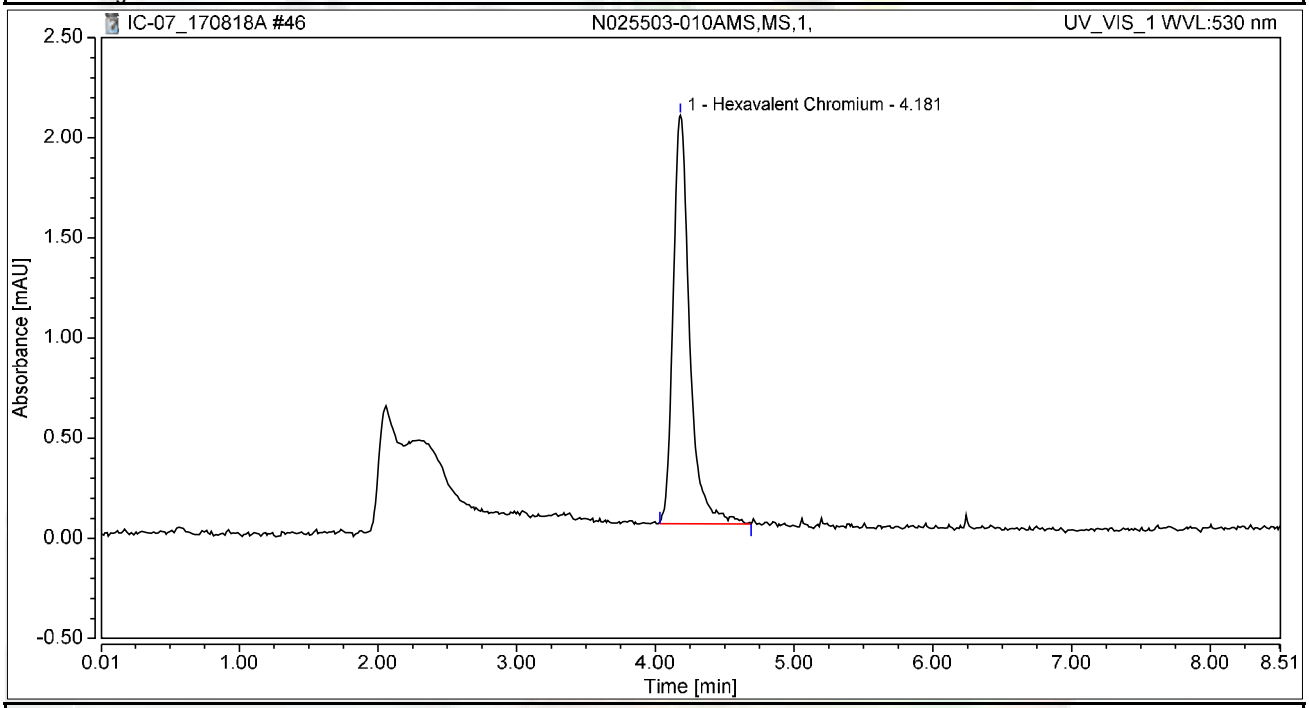
Chromatogram and Results

Injection Details

Injection Name:	**N025503-010AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

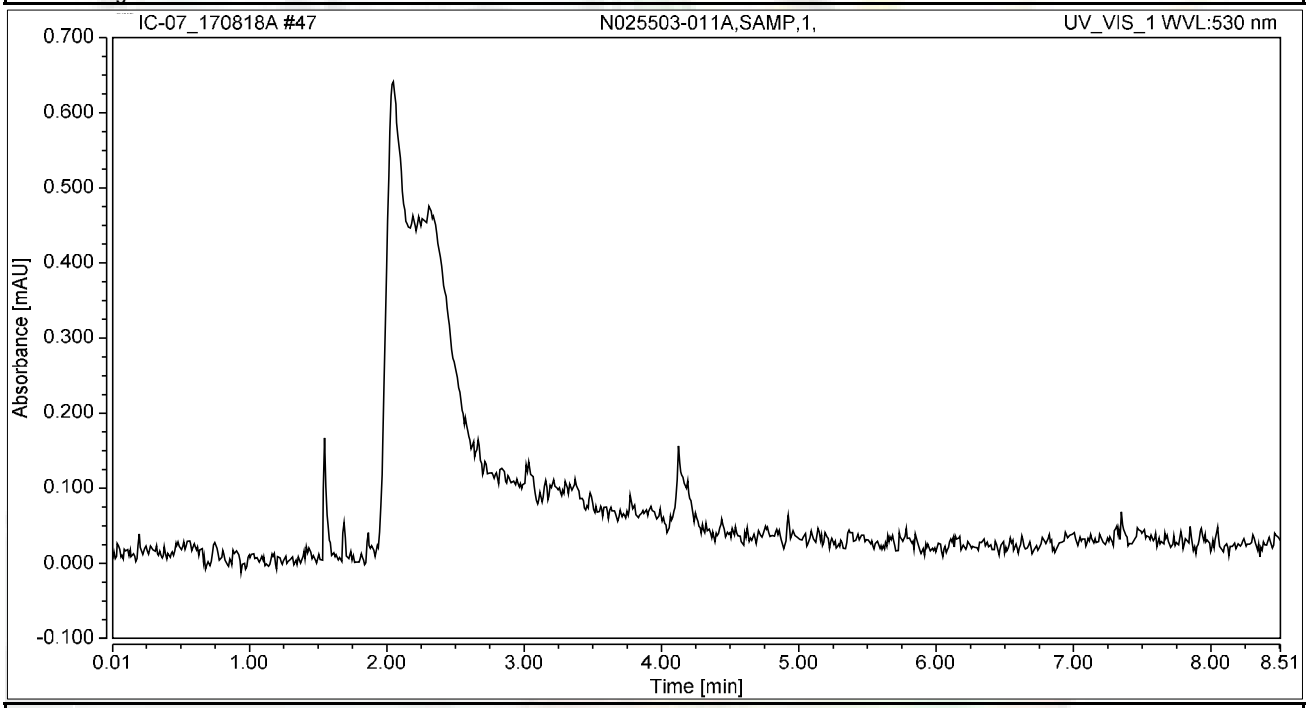
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.282	2.039	100.00	100.00	1.0715
Total:			**0.282**	**2.039**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-011A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

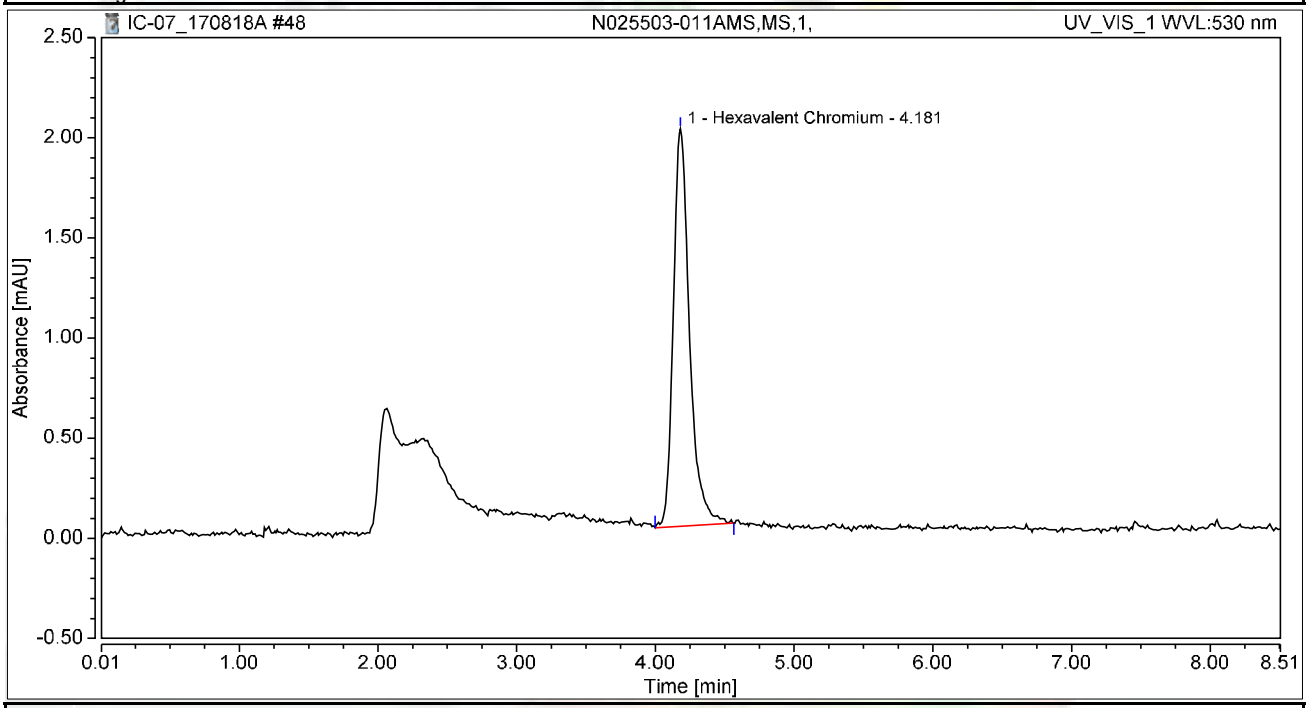
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-011AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 15:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

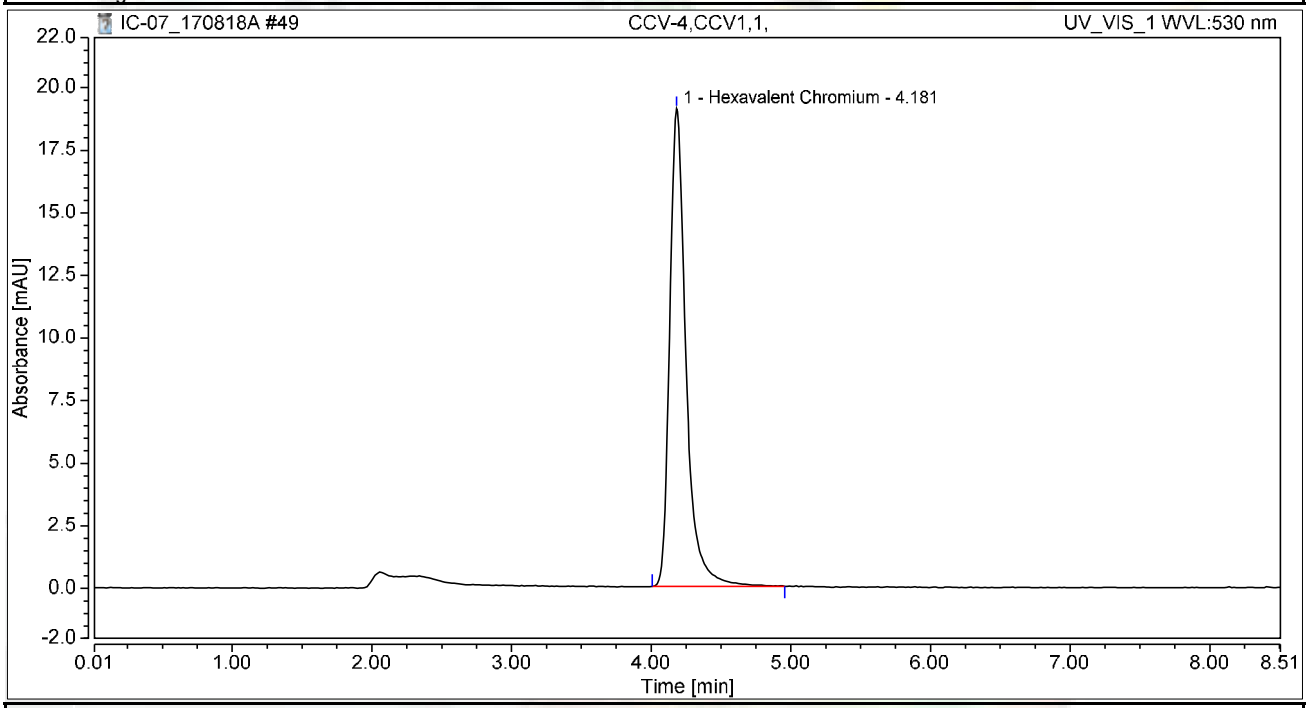
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.268	1.983	100.00	100.00	1.0185
Total:			**0.268**	**1.983**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

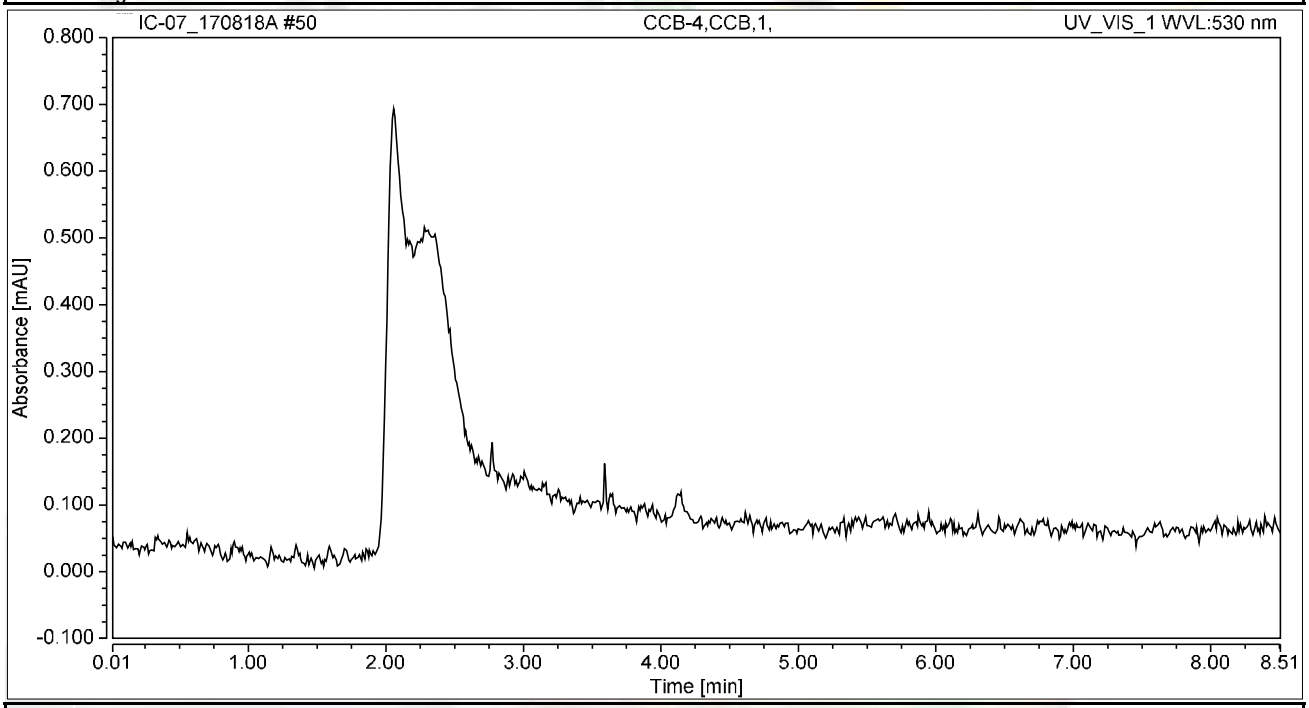
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	2.584	19.085	100.00	100.00	9.8085
Total:			**2.584**	**19.085**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

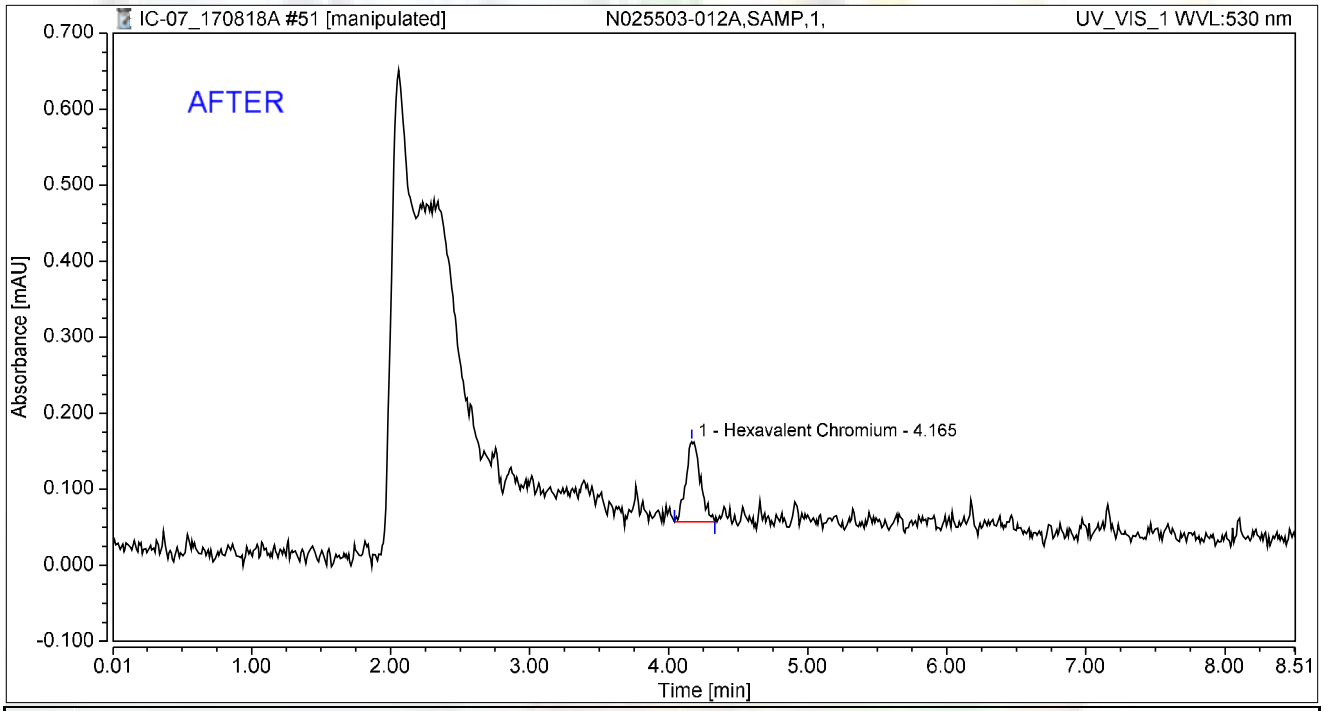
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-012A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.165	0.013	0.106	100.00	100.00	0.0490
Total:			**0.013**	**0.106**	**100.00**	**100.00**	

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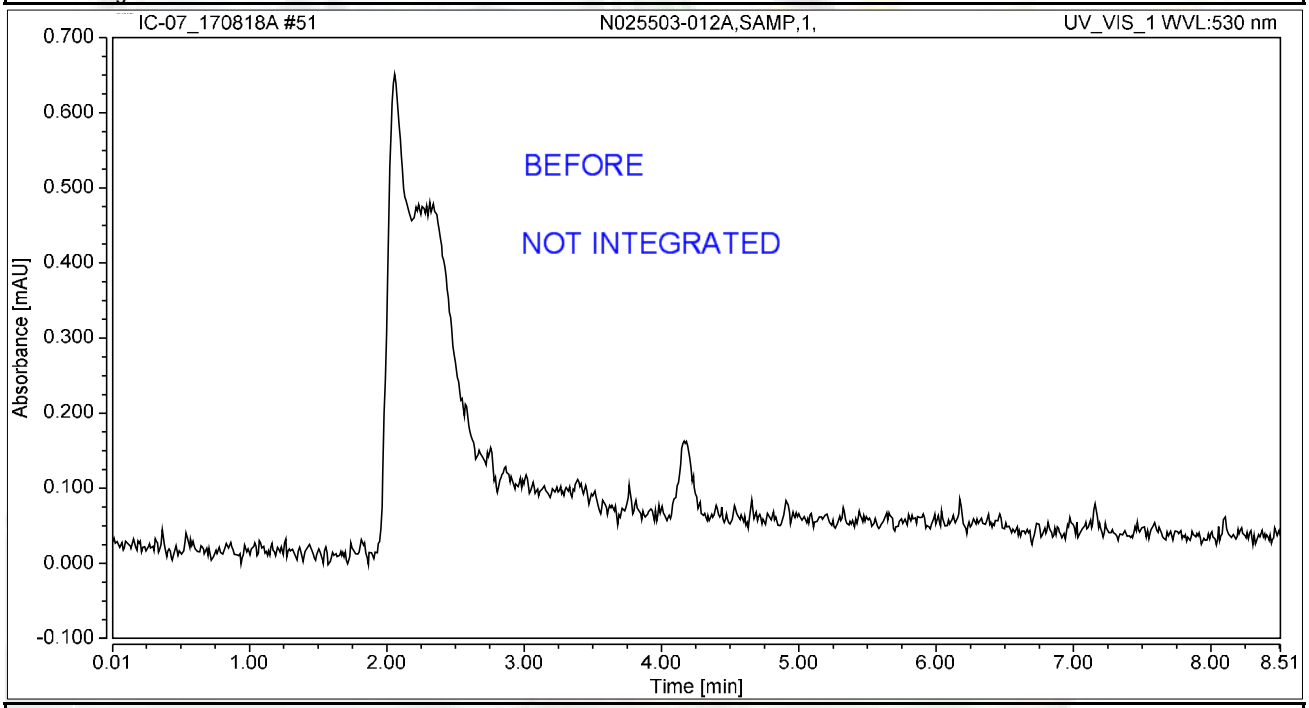
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-012A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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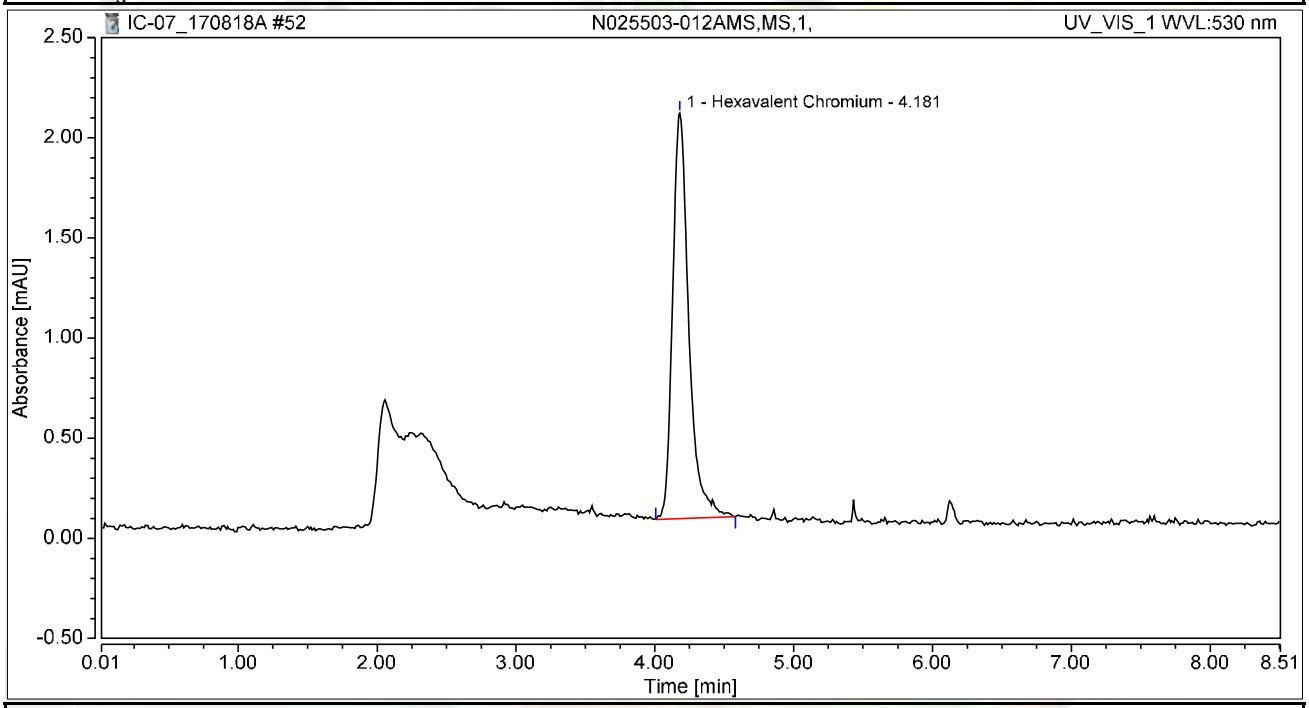
Chromatogram and Results

Injection Details

Injection Name:	**N025503-012AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

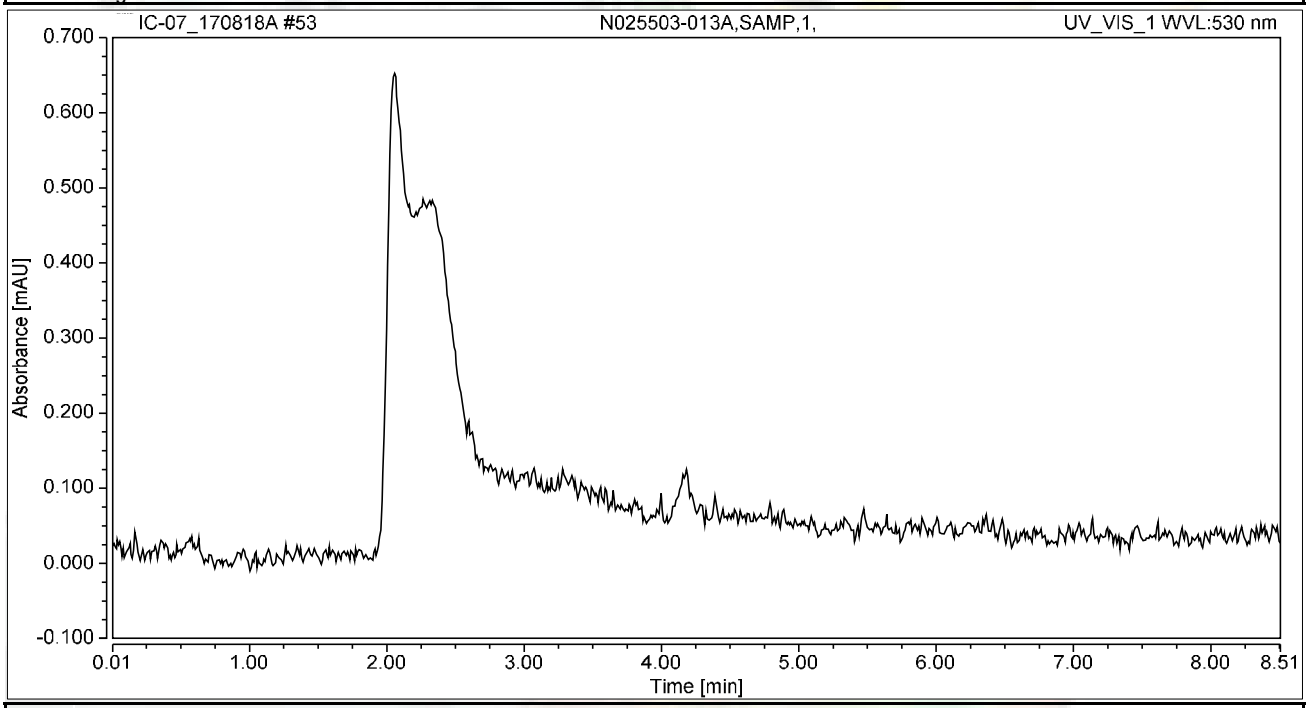
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.274	2.025	100.00	100.00	1.0395
Total:			**0.274**	**2.025**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-013A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

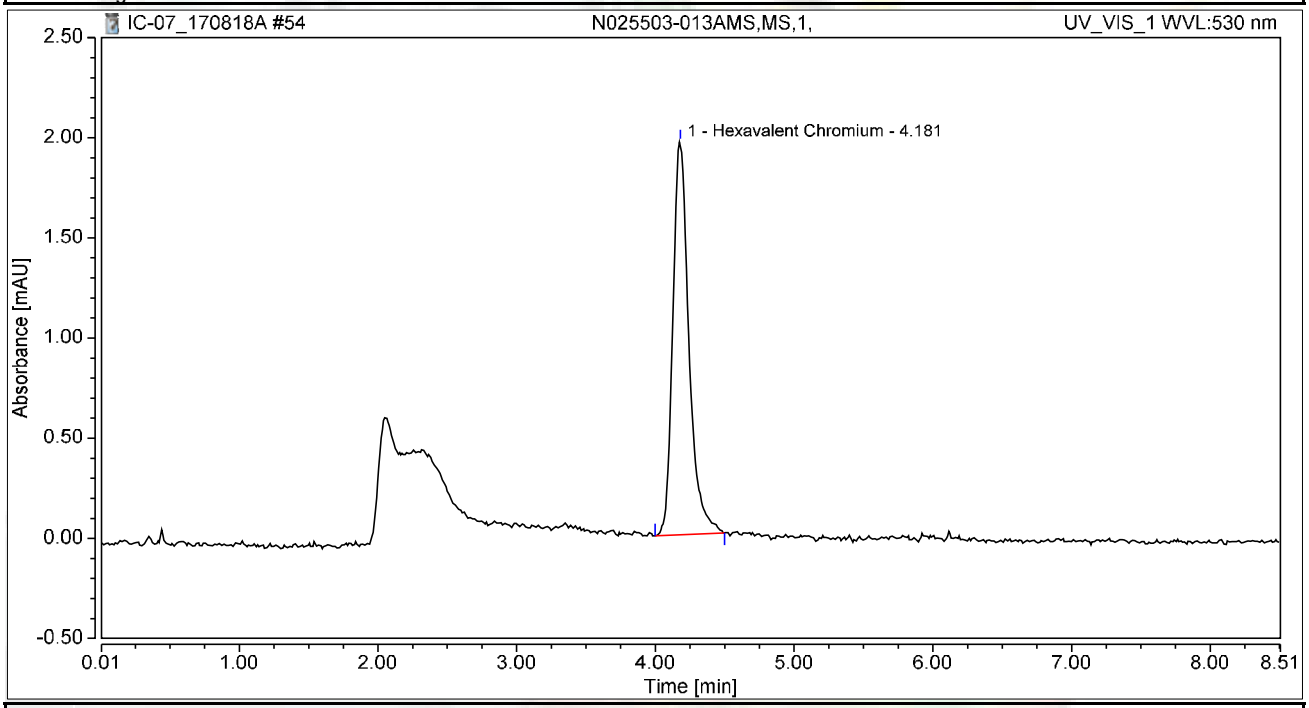
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-013AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 16:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

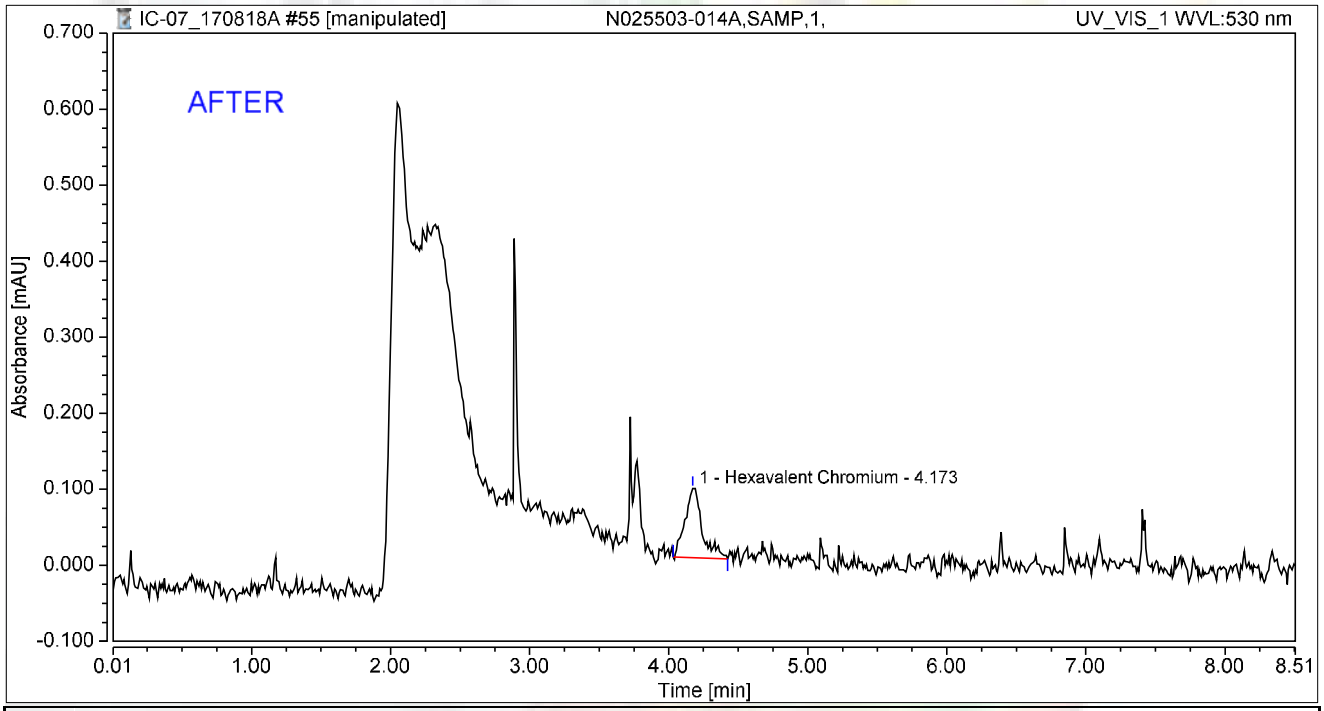
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.265	1.963	100.00	100.00	1.0058
Total:			**0.265**	**1.963**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-014A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.173	0.013	0.091	100.00	100.00	0.0493
Total:			**0.013**	**0.091**	**100.00**	**100.00**	

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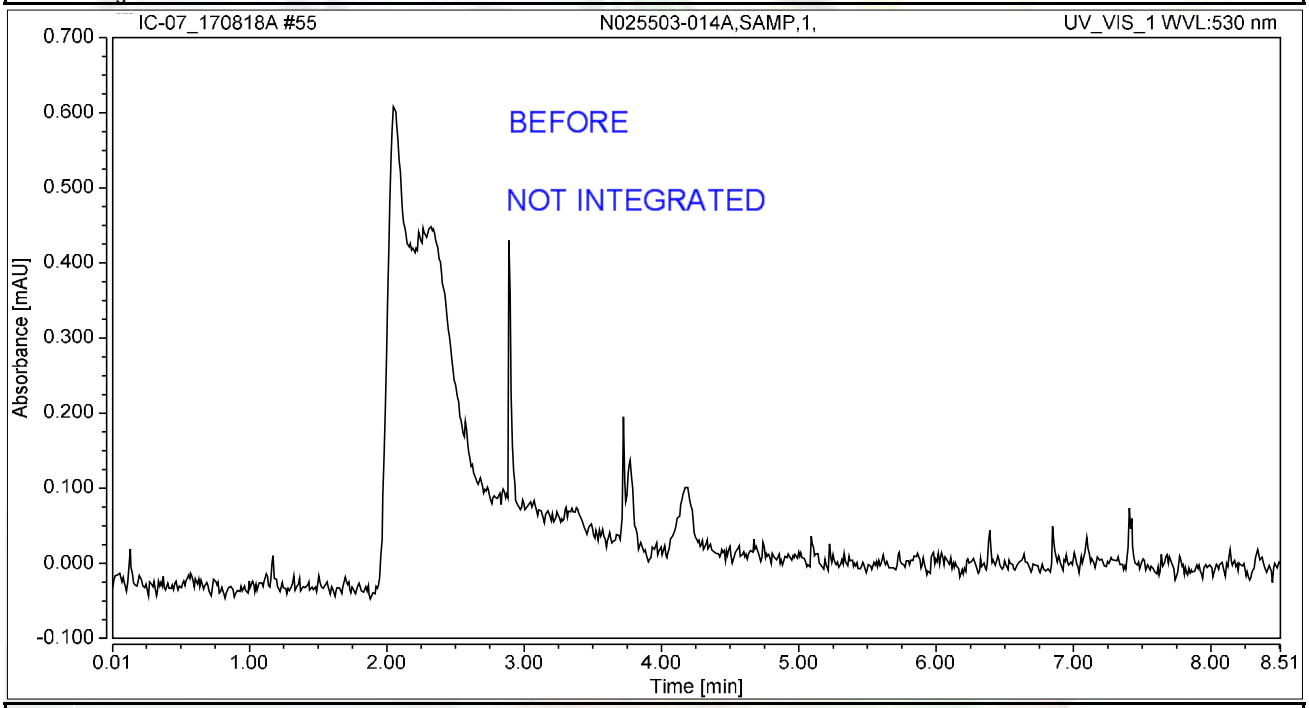
Reviewed by: 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-014A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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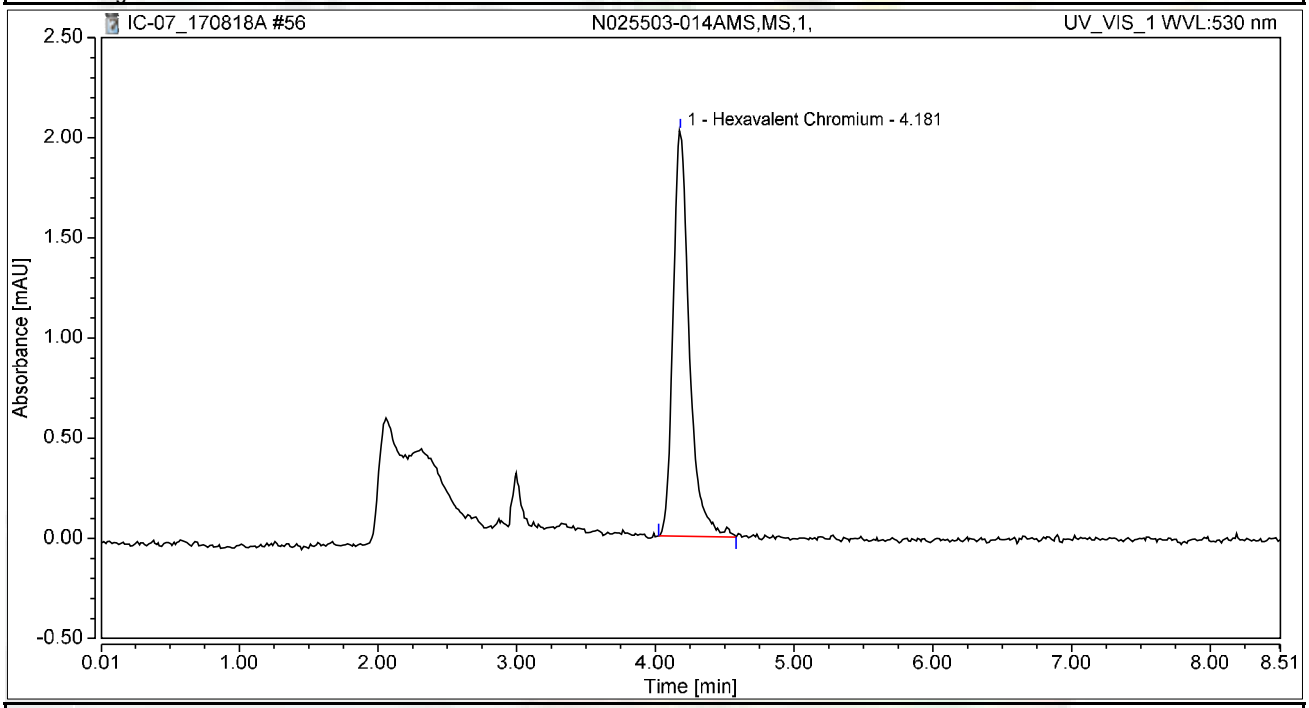
Chromatogram and Results

Injection Details

Injection Name:	**N025503-014AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

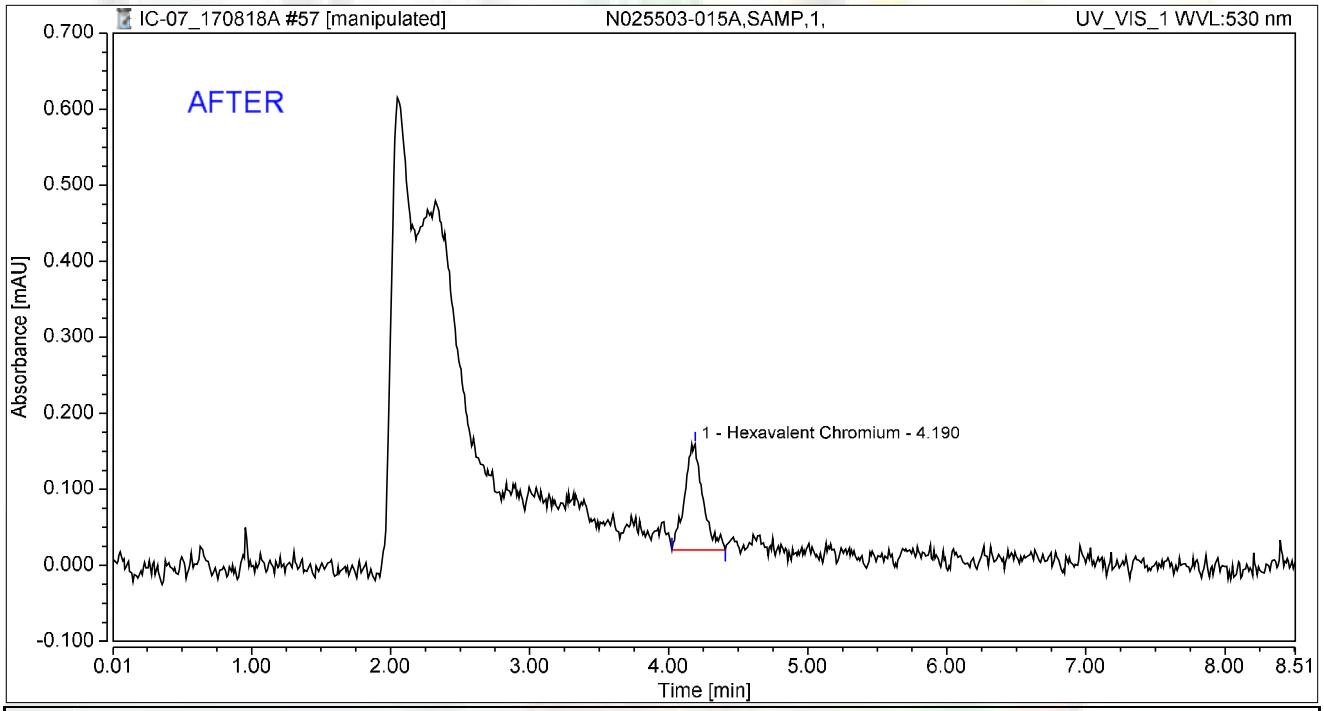
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.275	2.025	100.00	100.00	1.0439
Total:			**0.275**	**2.025**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-015A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.021	0.139	100.00	100.00	0.0806
Total:			**0.021**	**0.139**	**100.00**	**100.00**	

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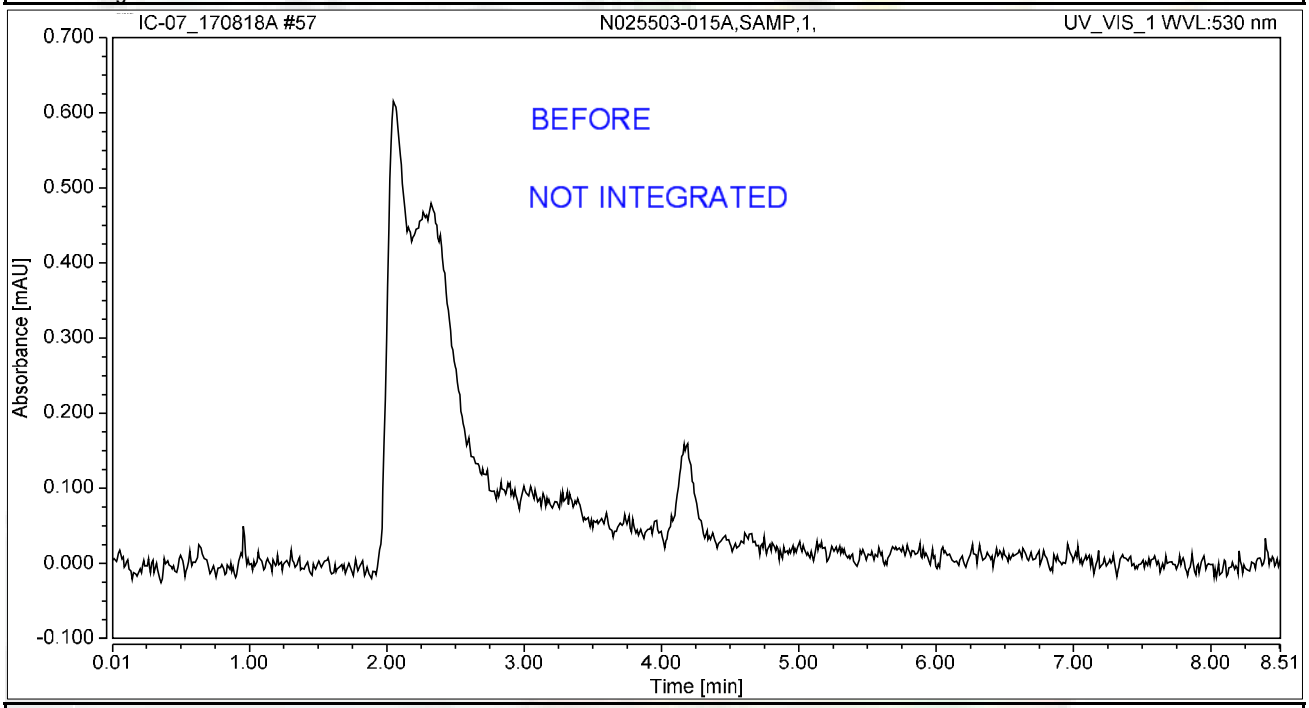
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-015A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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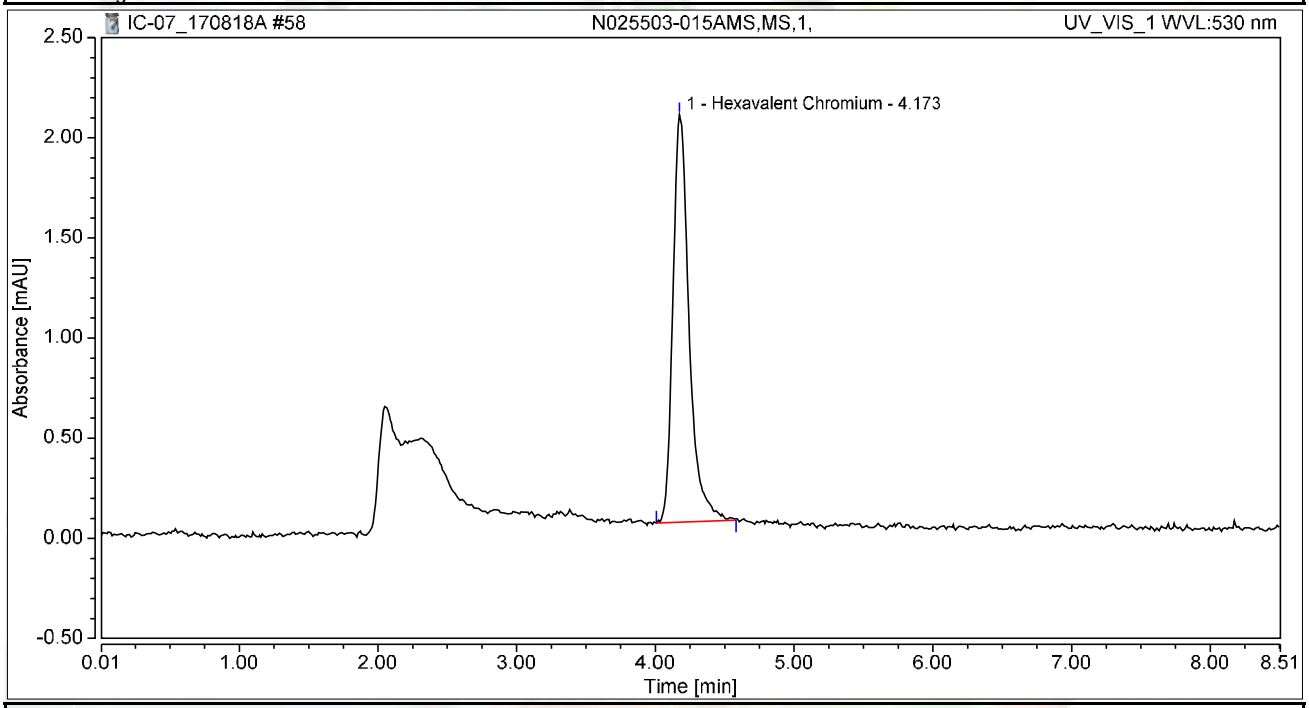
Chromatogram and Results

Injection Details

Injection Name:	**N025503-015AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

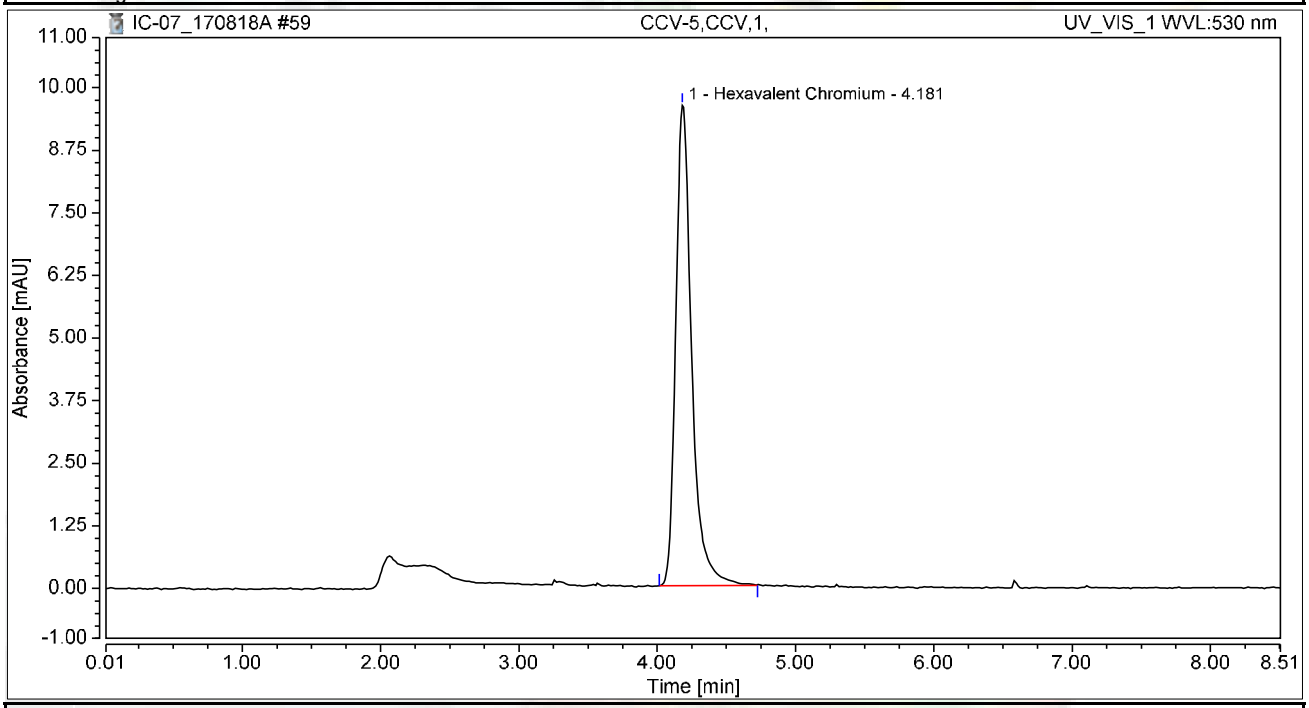
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.173	0.277	2.036	100.00	100.00	1.0502
Total:			**0.277**	**2.036**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

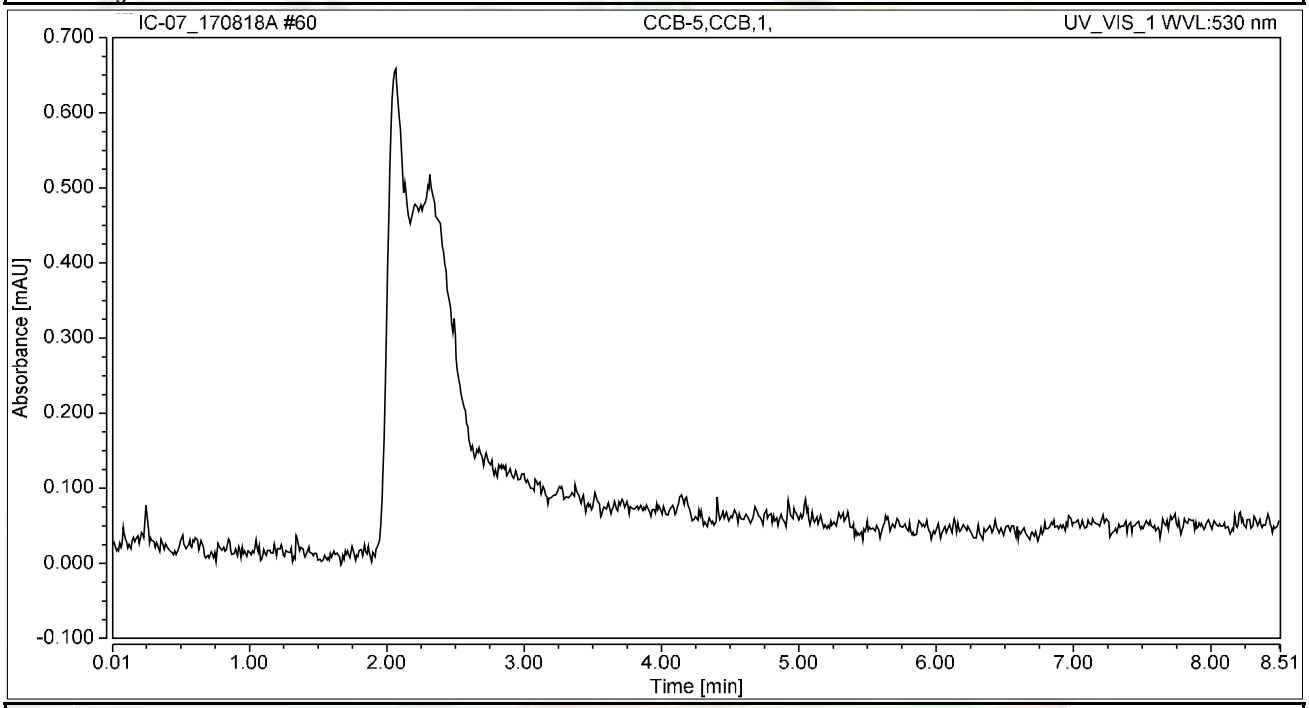
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	1.281	9.593	100.00	100.00	4.8633
Total:			**1.281**	**9.593**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**18/Aug/17 17:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170821A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:27 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	08/02/17 11:38 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	08/02/17 11:47 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	08/02/17 11:57 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:06 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:16 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:25 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:35 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	08/02/17 12:44 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	08/21/17 8:30 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	08/21/17 8:41 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	08/21/17 8:50 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	08/21/17 9:00 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	08/21/17 9:09 AM	Reported
15	MB-R116277	MBLK	1	Hexavalent Chromium	08/21/17 9:19 AM	Reported
16	LCS-R116277	LCS	1	Hexavalent Chromium	08/21/17 9:28 AM	Reported
17	N025503-005A	SAMP	1	Hexavalent Chromium	08/21/17 10:01 AM	Reported
18	N025503-005ADUP	DUP	1	Hexavalent Chromium	08/21/17 10:13 AM	Reported
19	N025503-005AMS	MS	1	Hexavalent Chromium	08/21/17 10:22 AM	Reported
20	N025503-005AMSD	MSD	1	Hexavalent Chromium	08/21/17 10:32 AM	Reported
21	CCV-2	CCV1	1	Hexavalent Chromium	08/21/17 10:59 AM	Reported
22	CCB-2	CCB	1	Hexavalent Chromium	08/21/17 11:10 AM	Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_170821A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**21/Aug/17 11:40:49**
No. of Injections:	**25**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		08/02/2017 11:27	Finished	
2	BLANK	2	1000	Unknown		08/02/2017 11:38	Finished	
3	iBLANK	3	1000	Unknown		08/02/2017 11:47	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	08/02/2017 11:57	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	08/02/2017 12:06	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	08/02/2017 12:16	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	08/02/2017 12:25	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	08/02/2017 12:35	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	08/02/2017 12:44	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		08/21/2017 08:30	Finished	
11	BLANK	2	1000	Unknown		08/21/2017 08:41	Finished	
12	CCV-1,CCV,1,	3	1000	Unknown		08/21/2017 08:50	Finished	CCV @5ppb, IWST-170622C
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		08/21/2017 09:00	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		08/21/2017 09:09	Finished	CCB R170724A
15	MB-H2O,MBLK,1	6	1000	Unknown		08/21/2017 09:19	Finished	MB R170724A
16	LCS-H2O,LCS,1	7	1000	Unknown		08/21/2017 09:28	Finished	LCS, IWST-170622D
17	N025503-005A,SAMP	9	1000	Unknown		08/21/2017 10:01	Finished	SAMP,10mL
18	N025503-005ADUP,D	10	1000	Unknown		08/21/2017 10:13	Finished	DUP,10mL
19	N025503-005AMS,MS	11	1000	Unknown		08/21/2017 10:22	Finished	MS (1ppb), IWST-170622D,10
20	N025503-005AMSD,M	12	1000	Unknown		08/21/2017 10:32	Finished	MSD (1ppb), IWST-170622D,1(
21	CCV-2,CCV1,1,	14	1000	Unknown		08/21/2017 10:59	Finished	CCV @10ppb, IWST-170622C
22	CCB-2,CCB,1,	15	1000	Unknown		08/21/2017 11:10	Finished	CCB R170724A
23	SHUTDOWN	16	1000	Unknown		08/21/2017 11:19	Finished	
24	Eluent: R170818A	17	1000	Unknown		n.a.	Finished	Eluent
25	PCR: R170818B	18	1000	Unknown		n.a.	Finished	Post-Column Reagent

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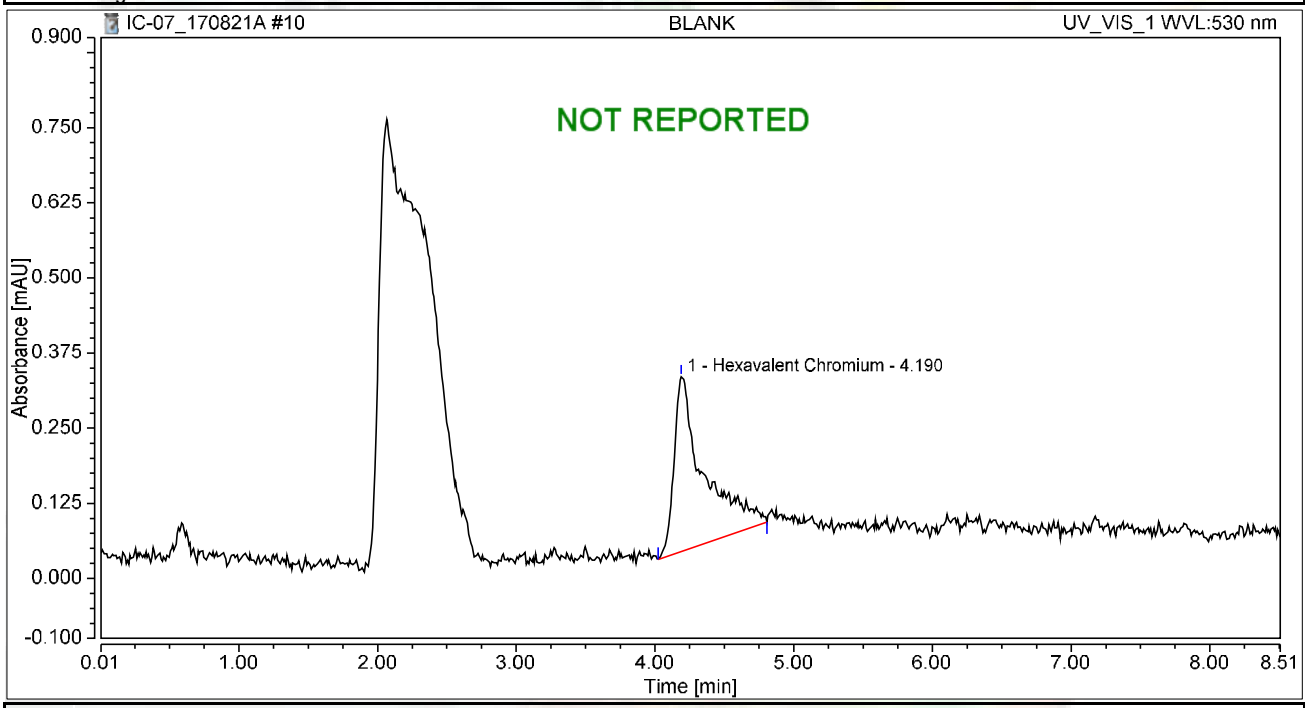
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 08:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

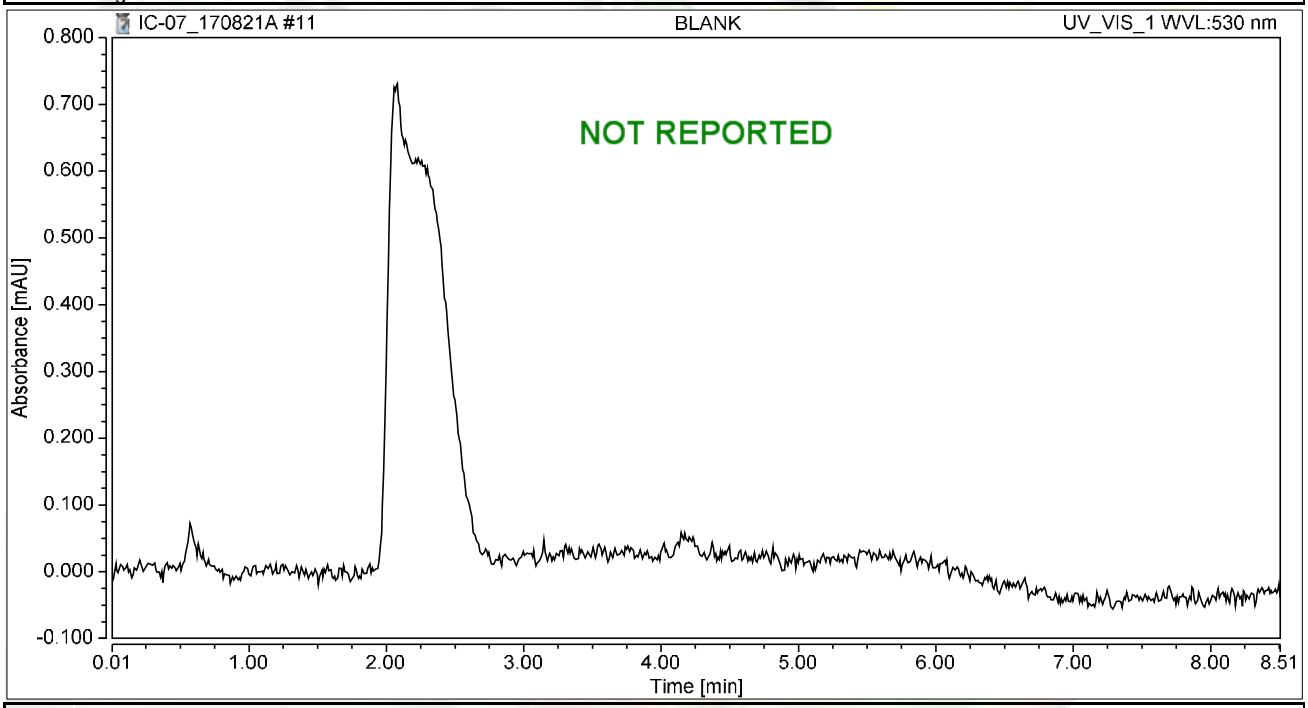
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.072	0.290	100.00	100.00	0.2744
Total:			**0.072**	**0.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 08:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

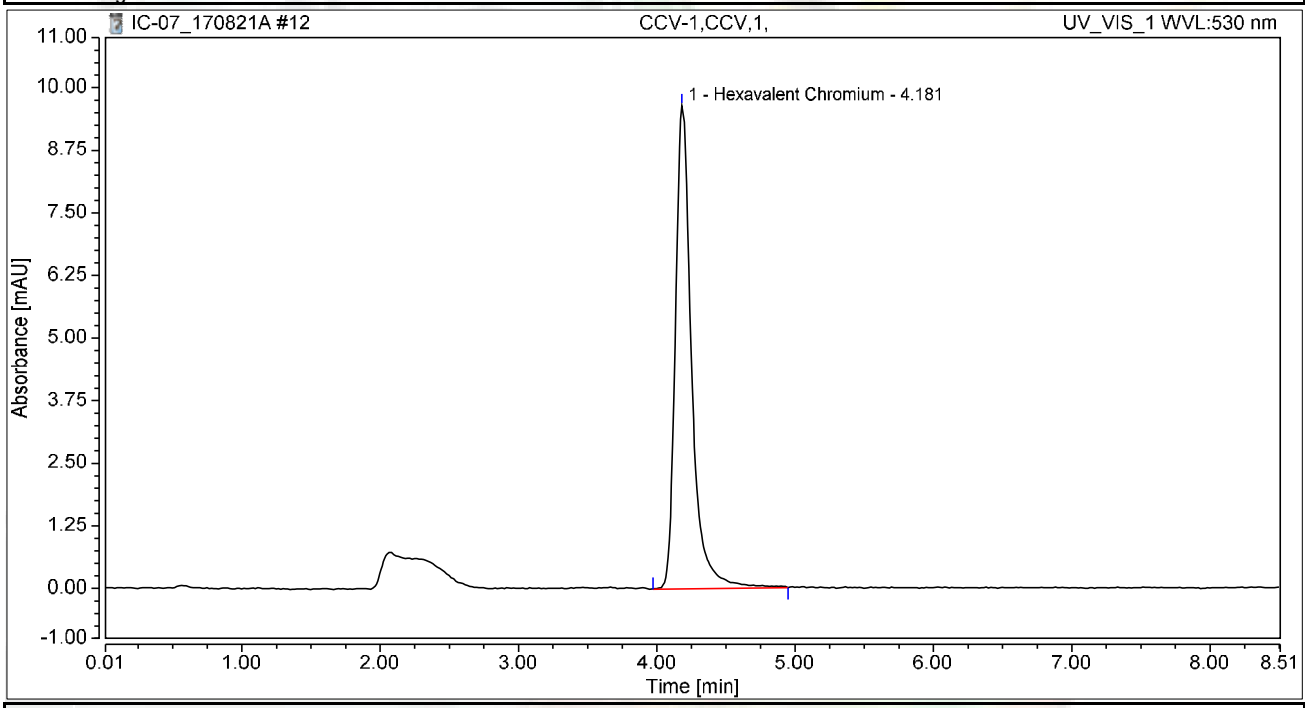
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 08:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

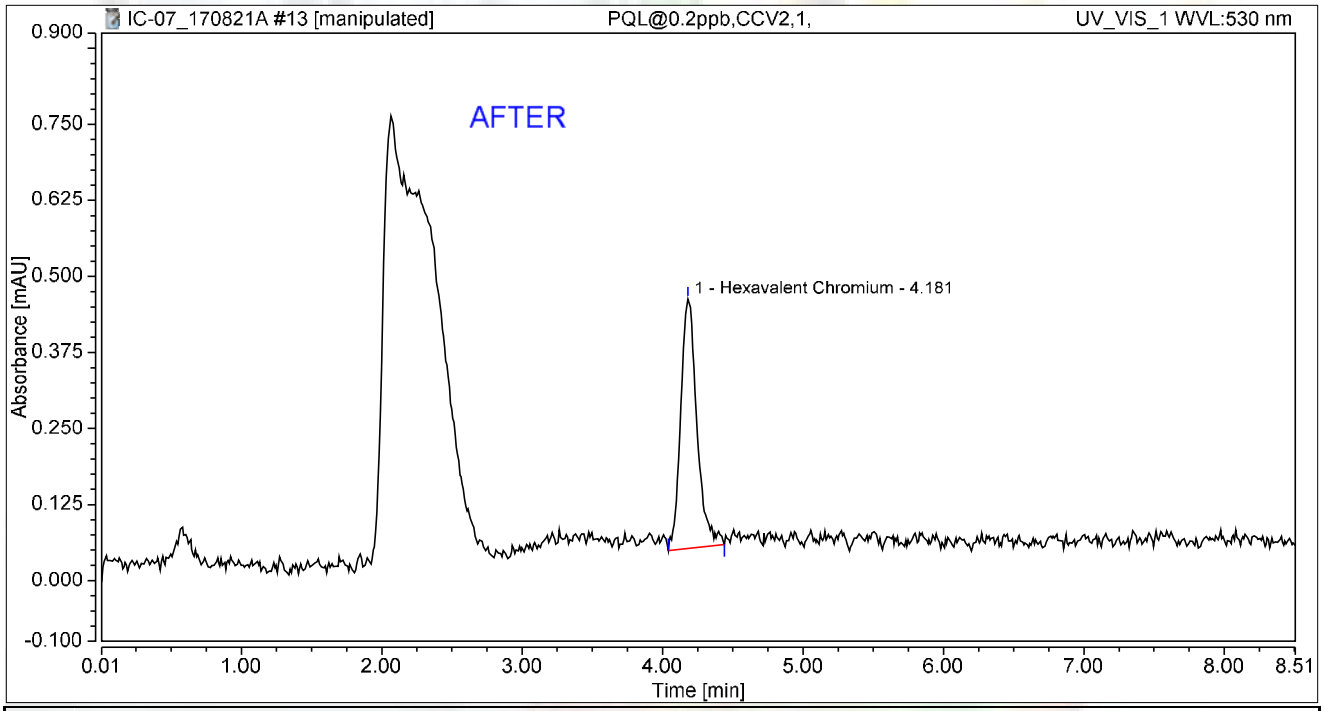
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	1.316	9.648	100.00	100.00	4.9961
Total:			**1.316**	**9.648**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 09:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.055	0.410	100.00	100.00	0.2092
Total:			**0.055**	**0.410**	**100.00**	**100.00**	

rba 8/22/2017

Reviewed by: Nancy 8/31/2017

My first report/Integration

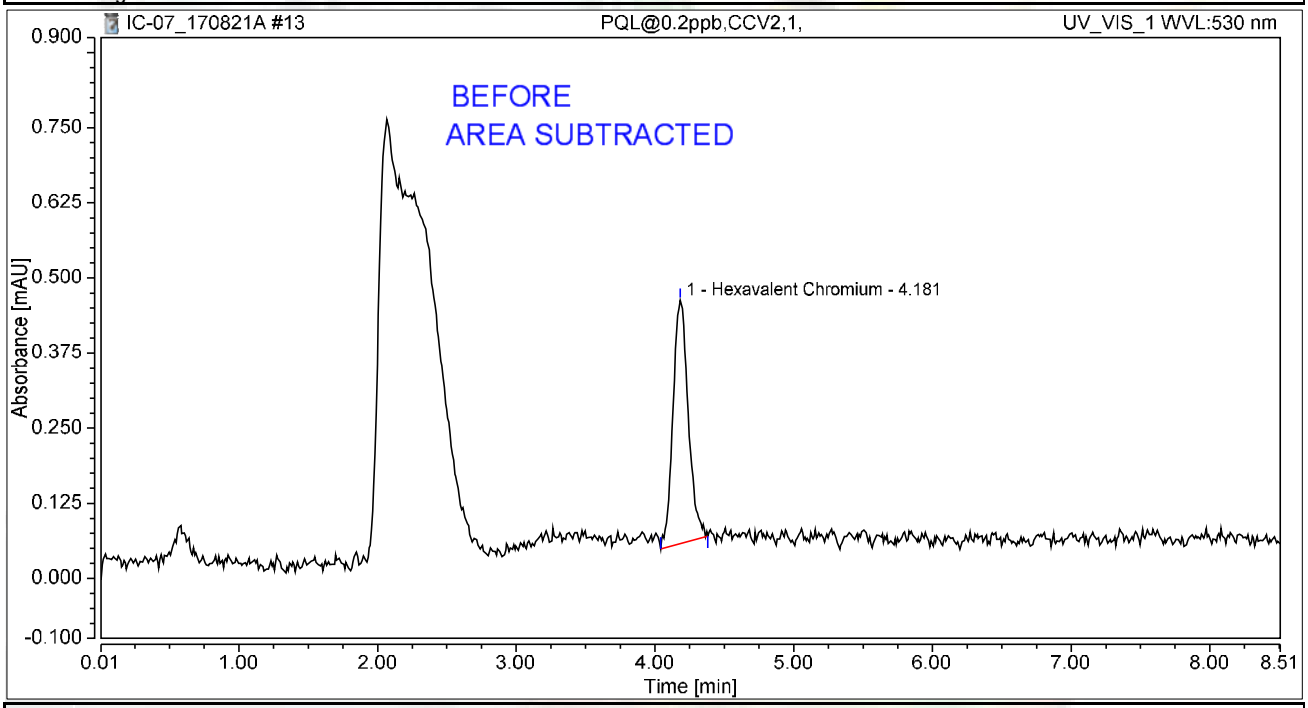
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 09:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.052	0.405	100.00	100.00	0.1974
Total:			**0.052**	**0.405**	**100.00**	**100.00**	

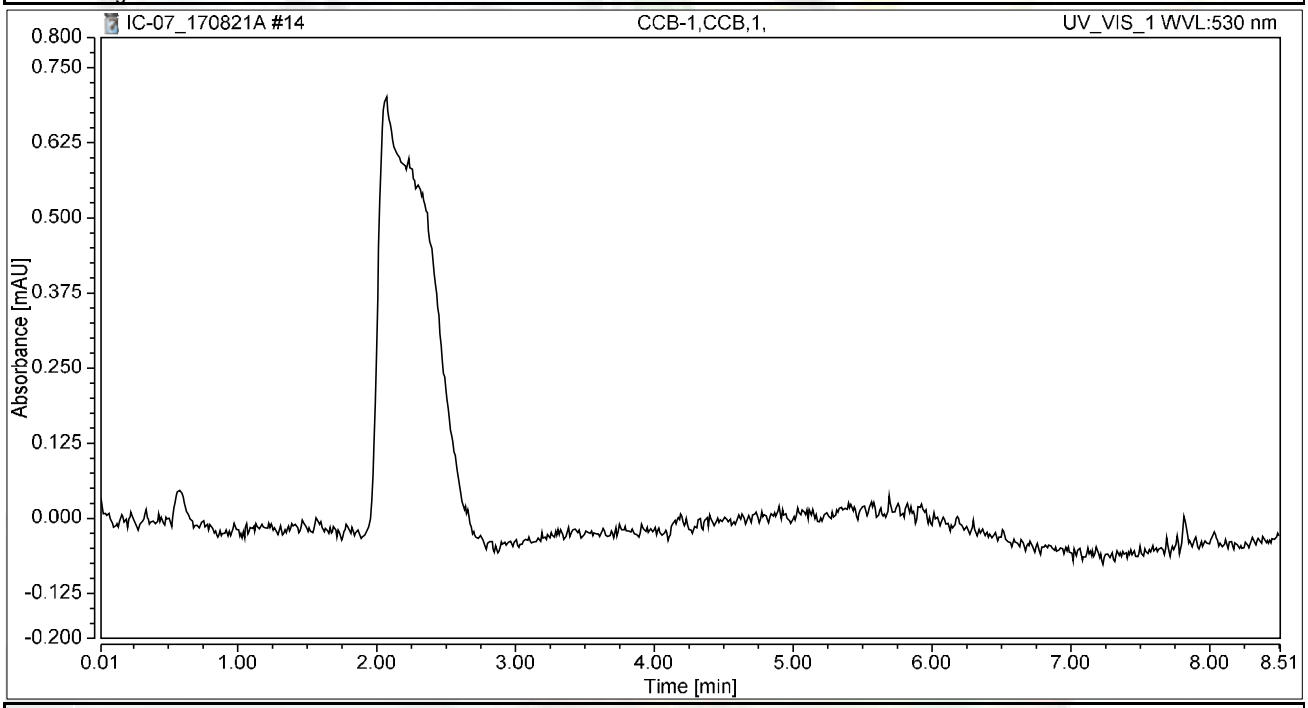
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 09:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

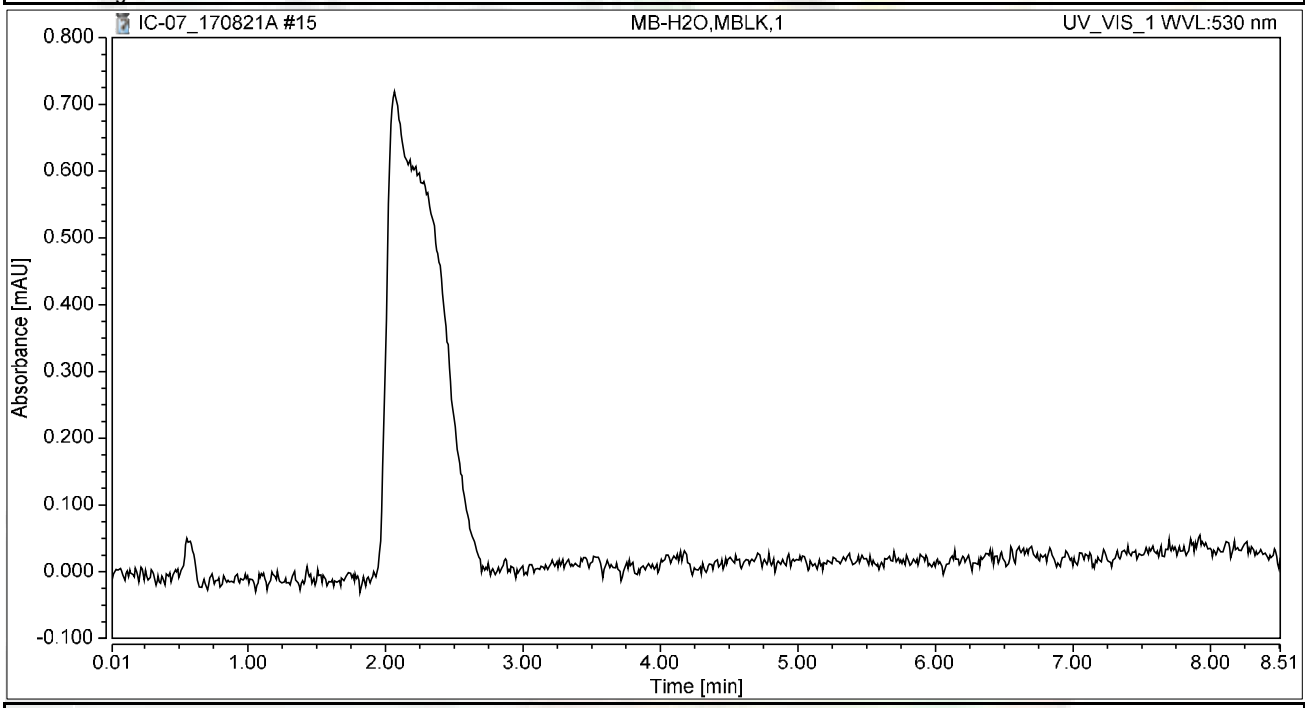
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 09:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

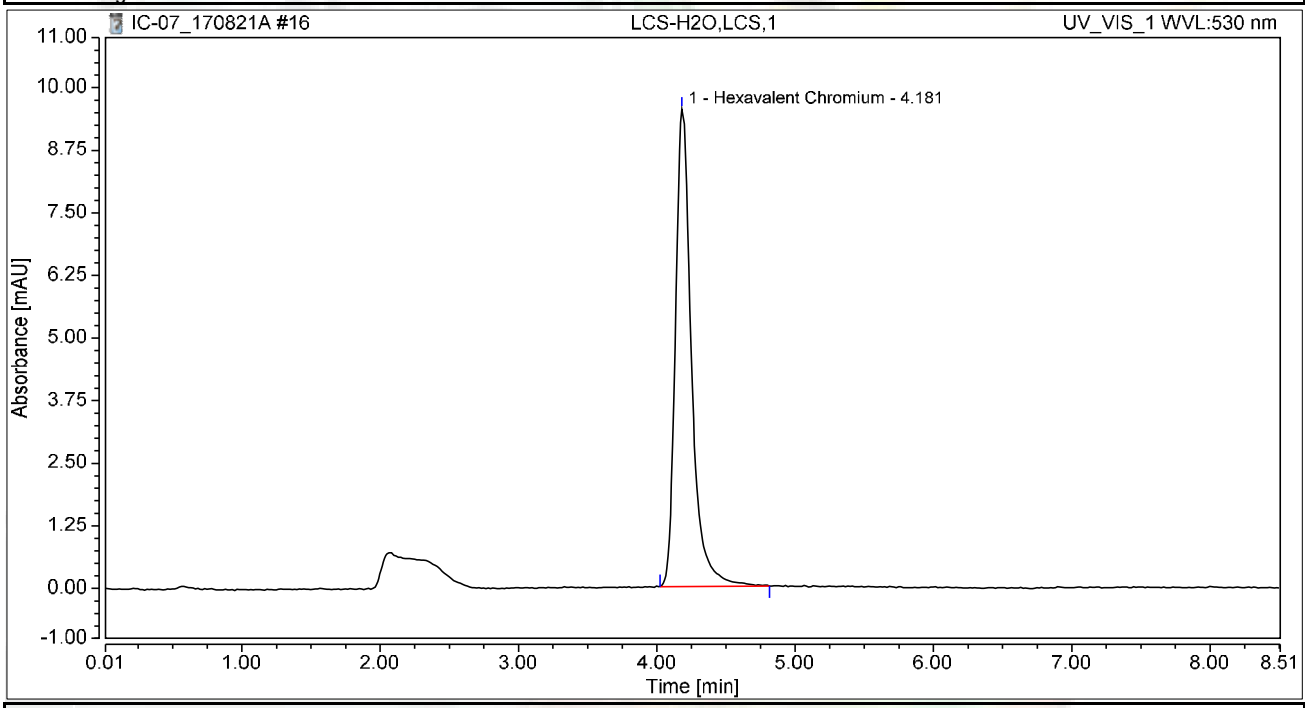
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 09:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

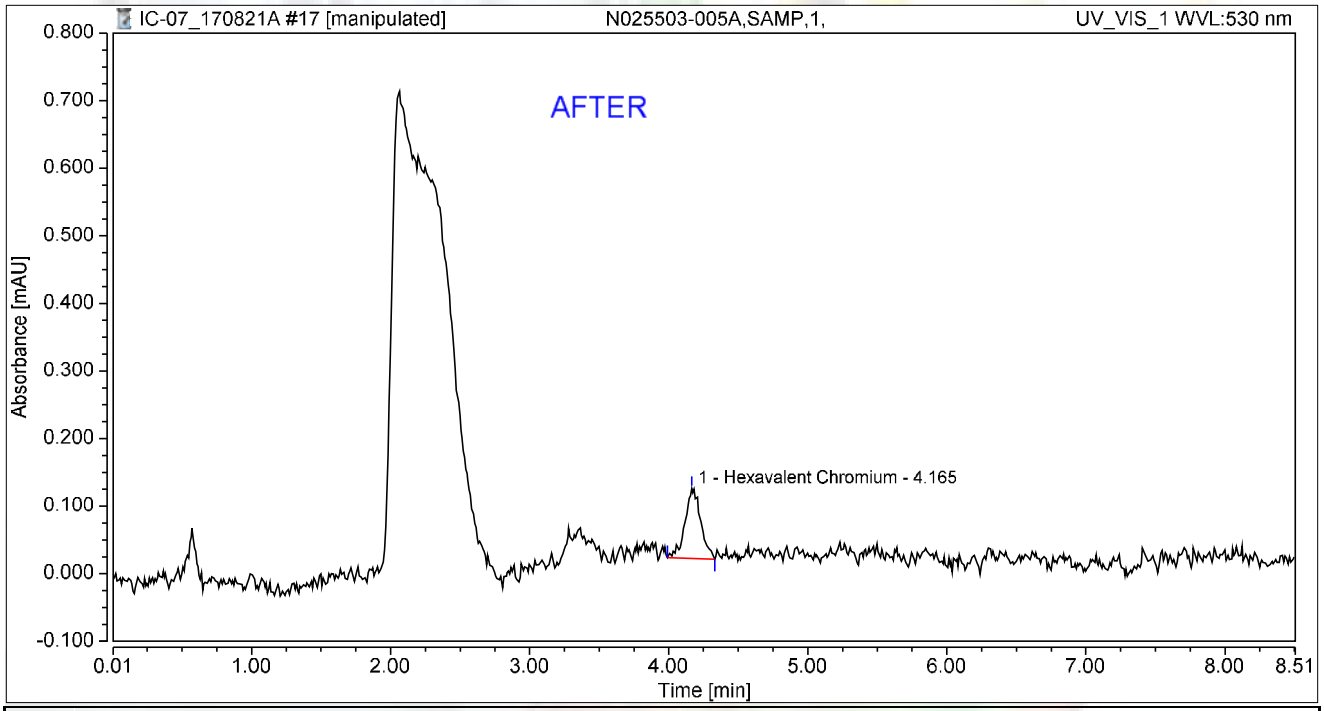
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	1.287	9.534	100.00	100.00	4.8862
Total:			**1.287**	**9.534**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.165	0.014	0.103	100.00	100.00	0.0516
Total:			**0.014**	**0.103**	**100.00**	**100.00**	

rba 8/22/2017

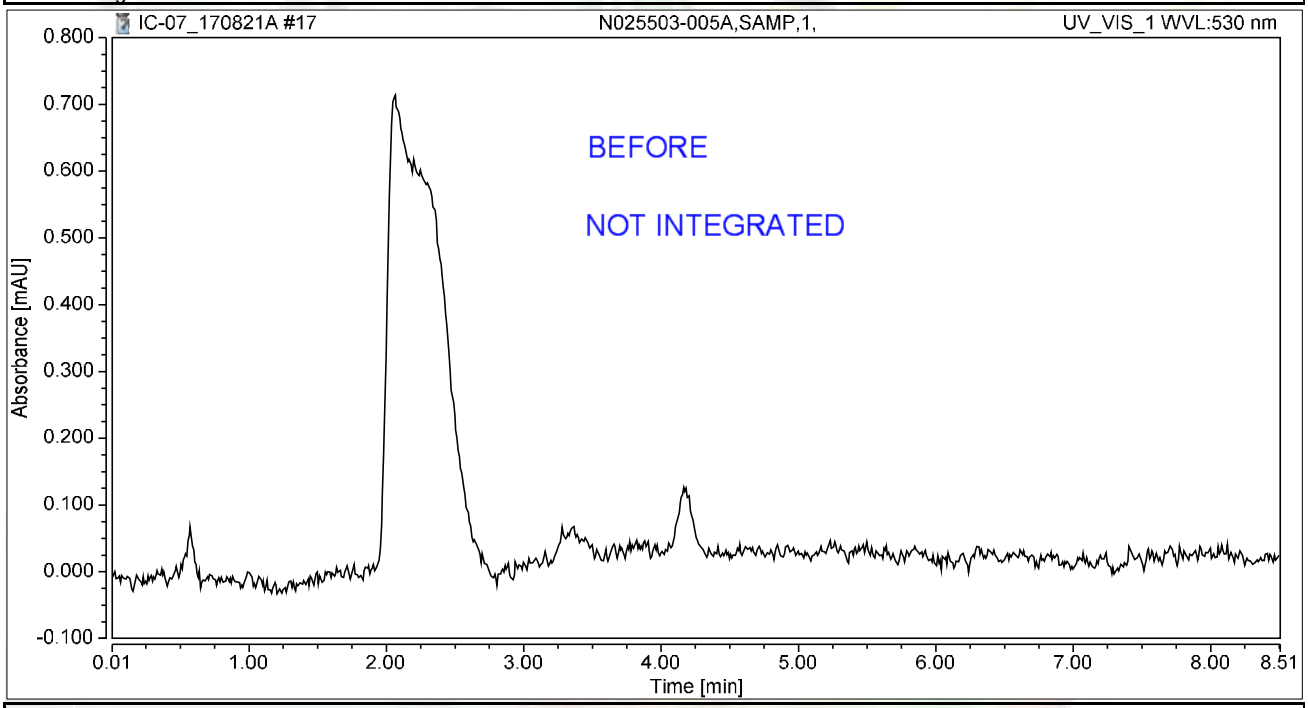
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

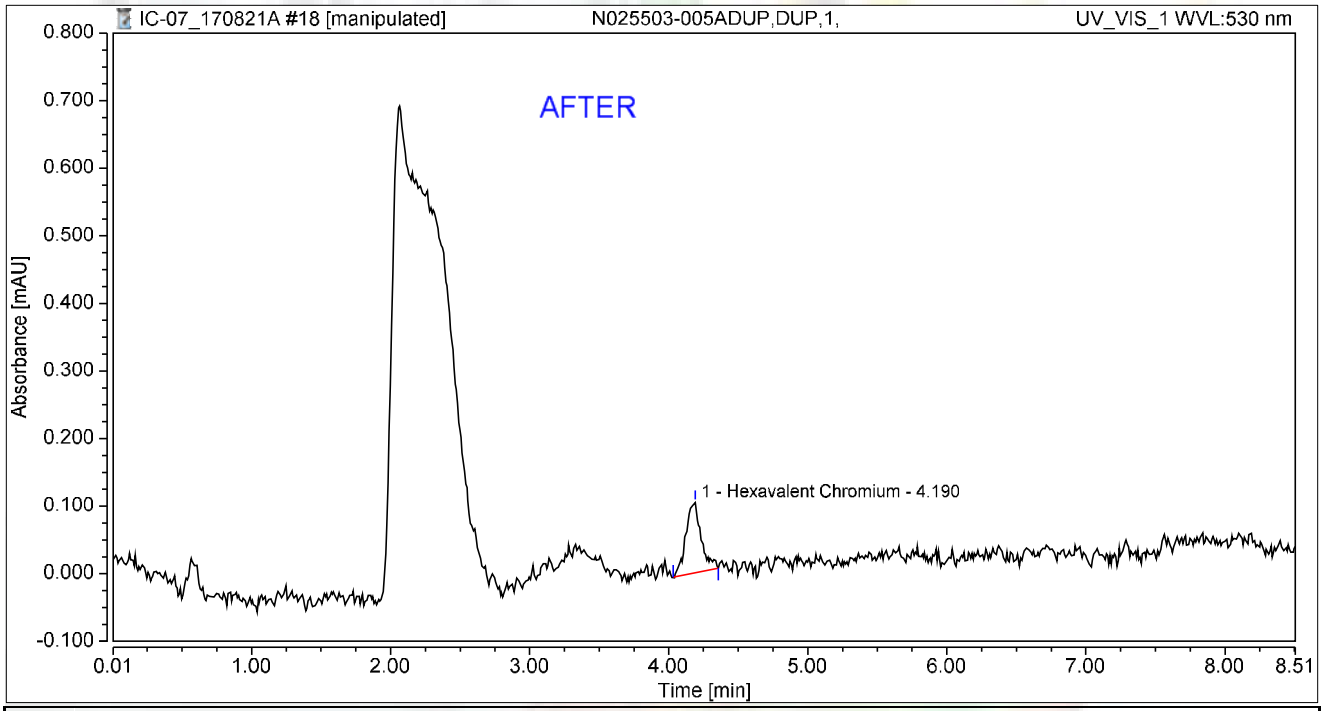
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.013	0.104	100.00	100.00	0.0505
Total:			**0.013**	**0.104**	**100.00**	**100.00**	

rba 8/22/2017

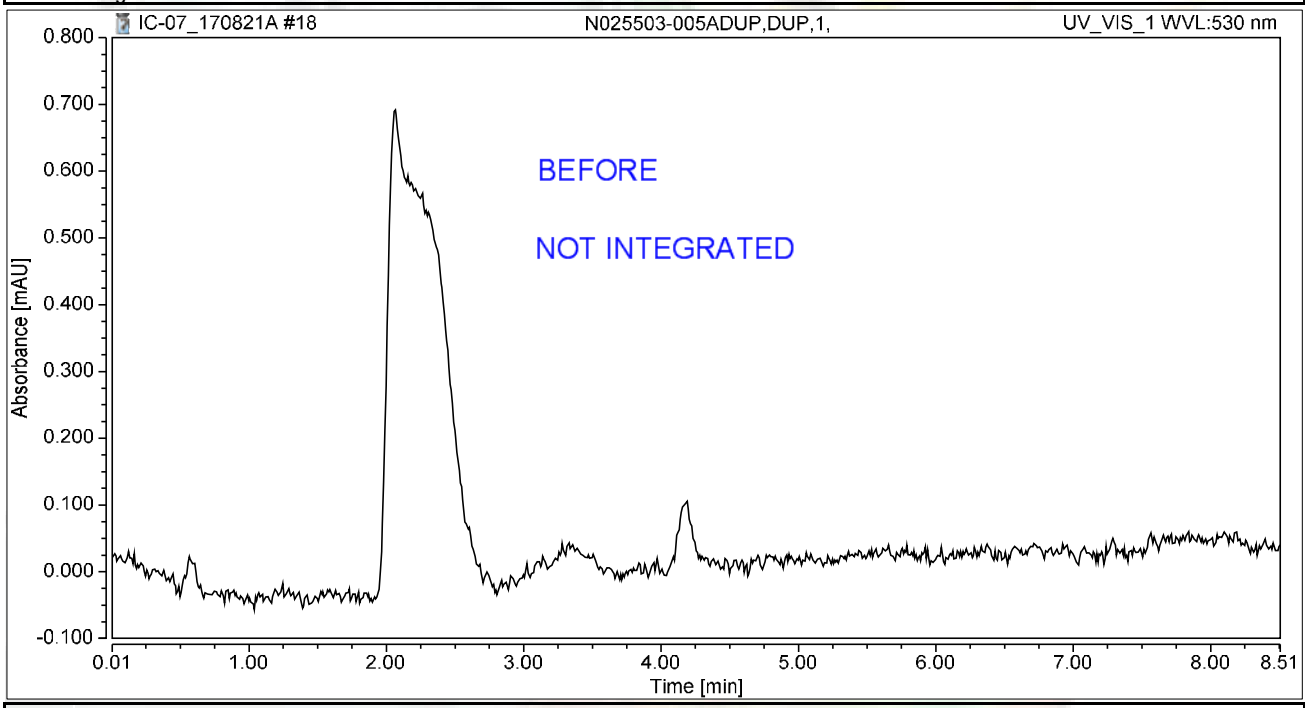
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

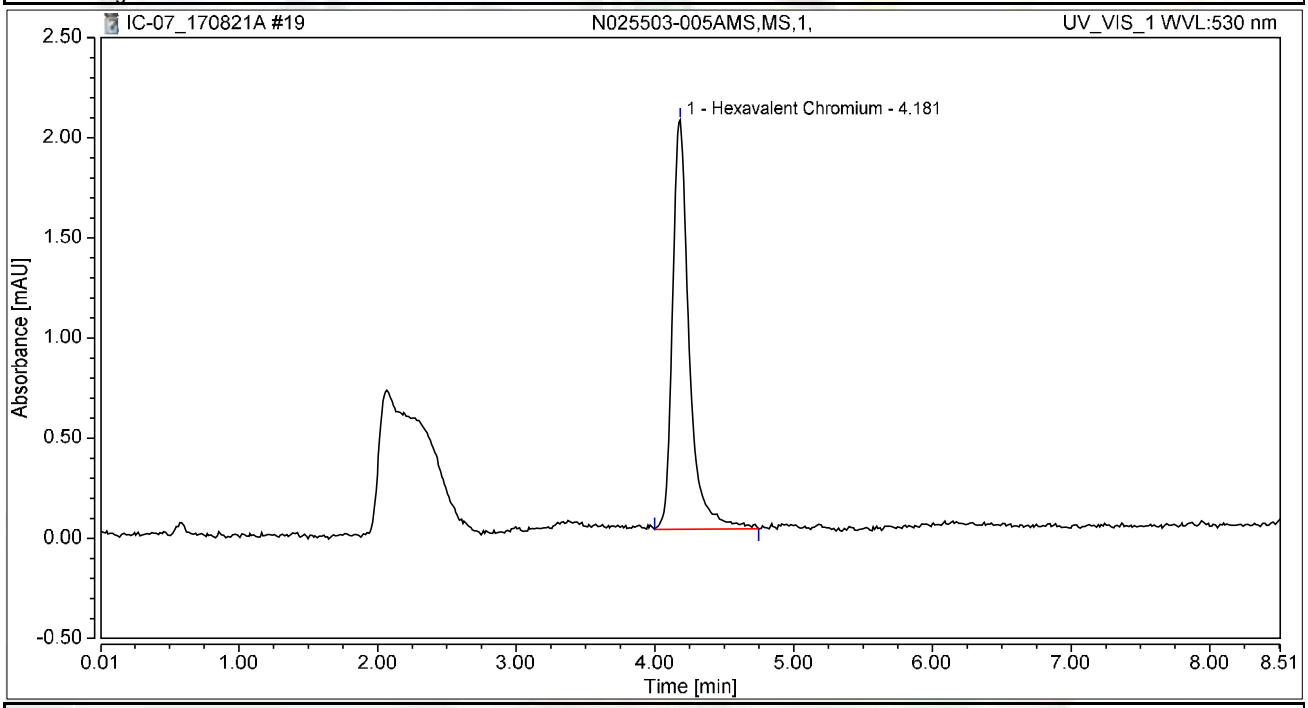
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

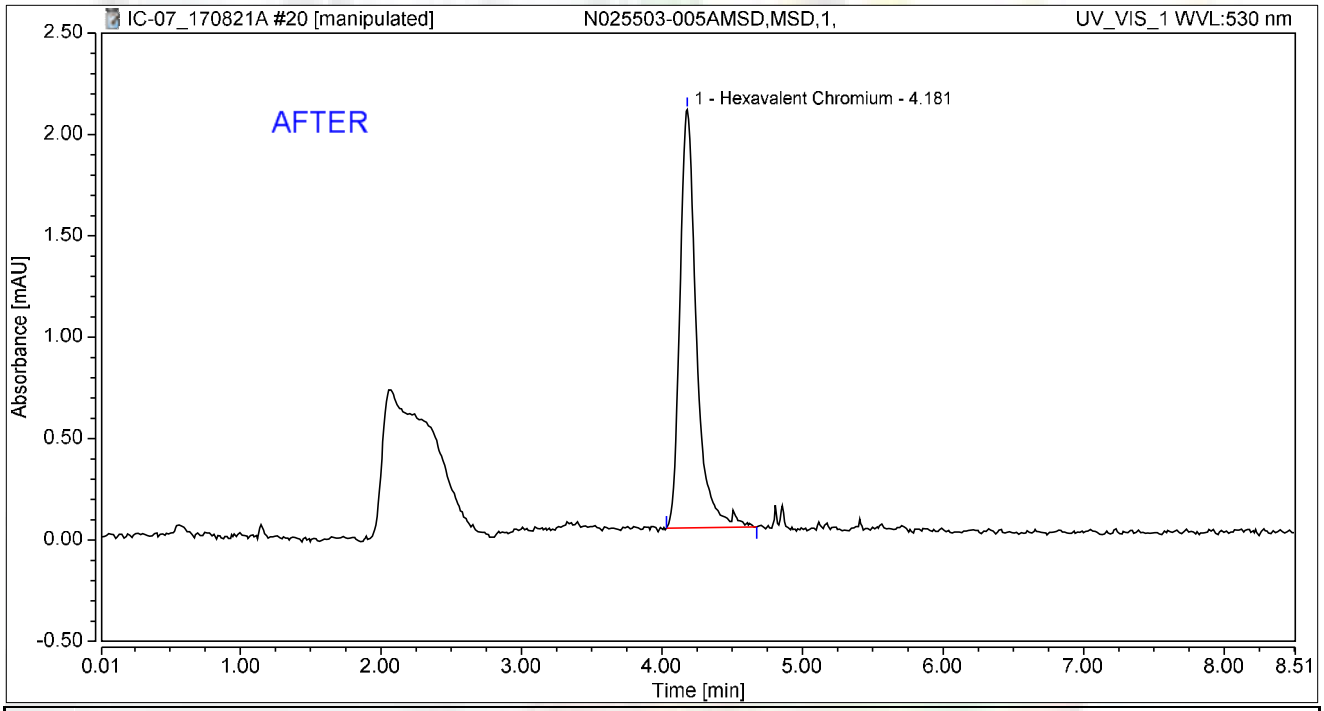
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.286	2.044	100.00	100.00	1.0840
Total:			**0.286**	**2.044**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005AMSD,MSD,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.282	2.063	100.00	100.00	1.0718
Total:			**0.282**	**2.063**	**100.00**	**100.00**	

rba 8/22/2017

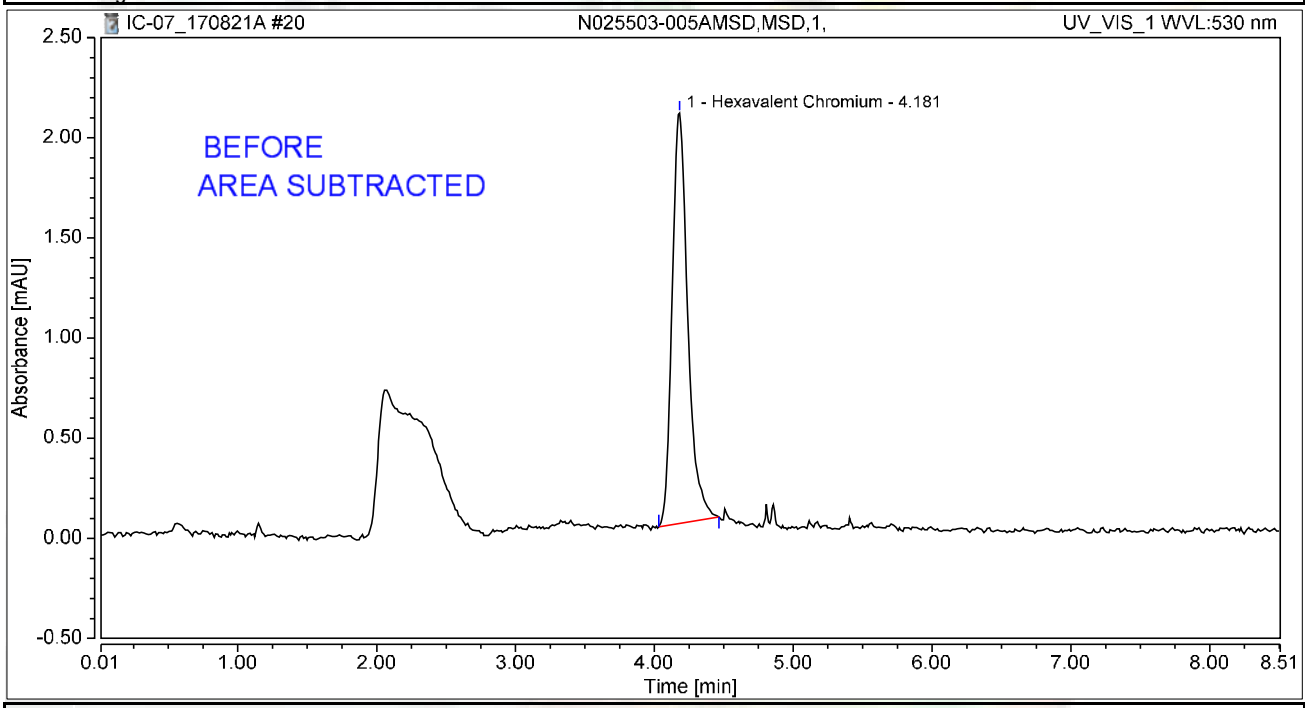
Reviewed by: Nancy 8/31/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025503-005AMSD,MSD,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	0.267	2.048	100.00	100.00	1.0139
Total:			**0.267**	**2.048**	**100.00**	**100.00**	

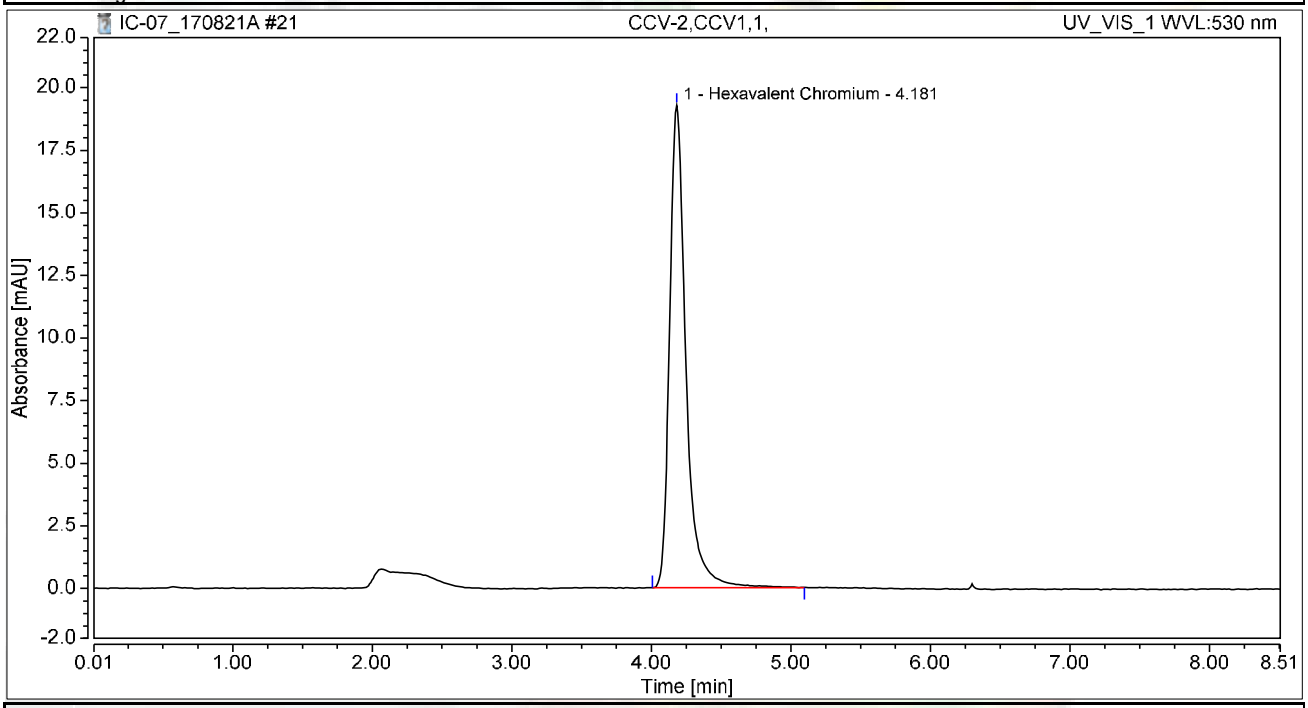
rba 8/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

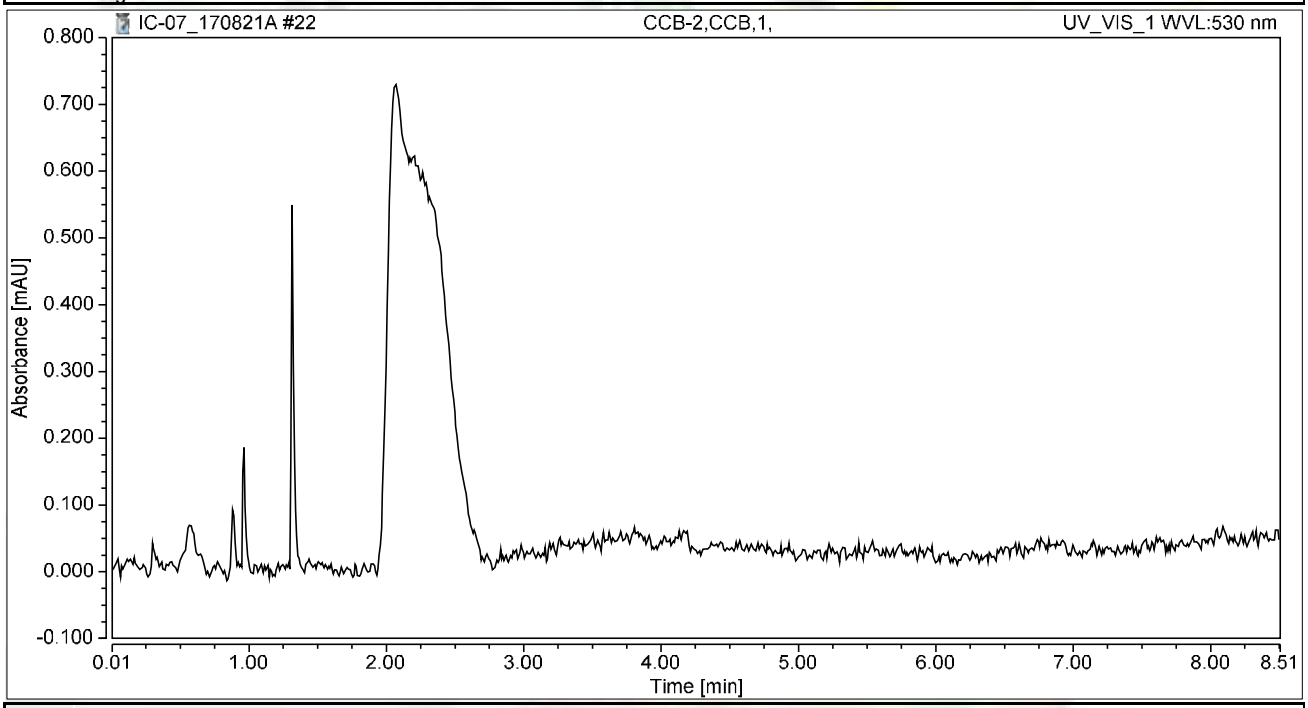
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.181	2.612	19.261	100.00	100.00	9.9152
Total:			**2.612**	**19.261**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170802_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/Aug/17 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117445,R117446 **Analyst:** REB

ASSET #: N025503 **Date Analyzed:** 8/23/17, 8/25/17

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value.	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
Sample Information						
8. All samples are within linear range.	X					
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer REB Date: 8/25/17

2nd Level Reviewer 8/31/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 4500_NO3F
TEST NAME: Nitrate by Automated Cadmium Reduction Method
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

Where:

A= mg/L, Nitrate/Nitrite-N instrument calculated concentration

DF= dilution factor

For **N025503-001E,** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.4161 * 1

= 0.4161 ug/L

Reporting result in 2 significant figures,

Nitrate/Nitrite-N, mg/L = 0.42

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

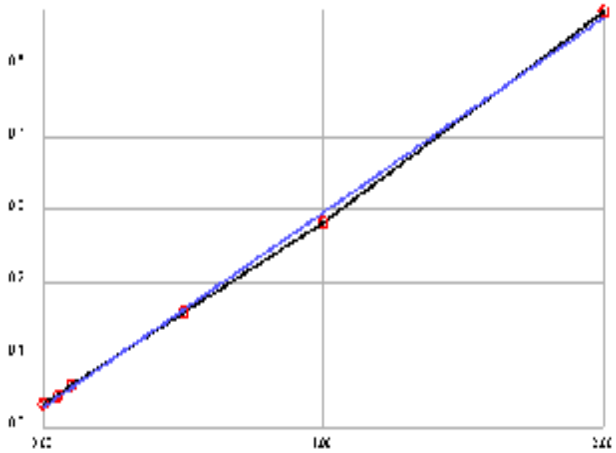
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2689x + 0.028
Correlation	.999324

Calibrant	Energy	Set	Conc
1	0.0318	0.0000	0.0140
2	0.0445	0.0500	0.0612
3	0.0577	0.1000	0.1103
4	0.1594	0.5000	0.4886
5	0.2828	1.0000	0.9475
6	0.5734	2.0000	2.0283

Notes:

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

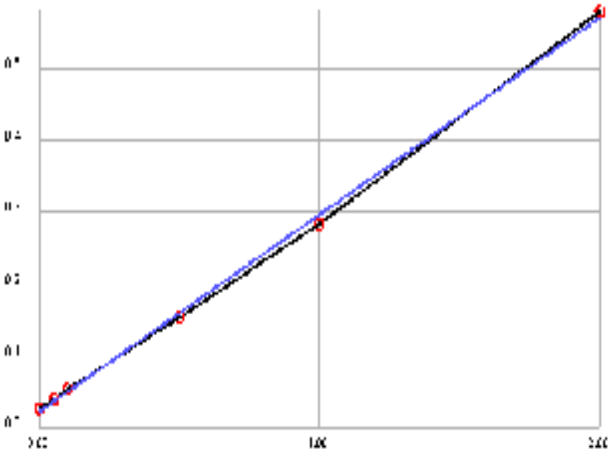
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2748x + 0.0217
Correlation	.999318

Calibrant	Energy	Set	Conc
1	0.0254	0.0000	0.0134
2	0.0387	0.0500	0.0618
3	0.0532	0.1000	0.1146
4	0.1540	0.5000	0.4813
5	0.2829	1.0000	0.9504
6	0.5792	2.0000	2.0285

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.501	0.050	0.5000	0	100	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.490	0.050	0.5000	0	98.0	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **CCV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/23/2017**	SeqNo: **2746275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.3	90	110				

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117445**
Client ID: **ICV**	Batch ID: **R117445**	TestNo: **SM4500-NO3**		Analysis Date: **8/22/2017**	SeqNo: **2751998**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.507	0.050	0.5000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117446**
Client ID: **ICV**	Batch ID: **R117446**	TestNo: **SM4500-NO3**		Analysis Date: **8/25/2017**	SeqNo: **2746277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.511	0.050	0.5000	0	102	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117446**
Client ID: **CCV**	Batch ID: **R117446**	TestNo: **SM4500-NO3**		Analysis Date: **8/25/2017**	SeqNo: **2746286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.496	0.050	0.5000	0	99.1	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117446**
Client ID: **CCV**	Batch ID: **R117446**	TestNo: **SM4500-NO3**		Analysis Date: **8/25/2017**	SeqNo: **2746292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.543	0.050	0.5000	0	109	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	**CCB-1**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**117445**
Client ID:	**CCB**	Batch ID:	**R117445**	TestNo:	**SM4500-NO3**			Analysis Date:	**8/23/2017**	SeqNo:	**2746242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.025	0.050									

Sample ID	**CCB-2**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**117445**
Client ID:	**CCB**	Batch ID:	**R117445**	TestNo:	**SM4500-NO3**			Analysis Date:	**8/23/2017**	SeqNo:	**2746255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.026	0.050									

Sample ID	**CCB-3**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**117445**
Client ID:	**CCB**	Batch ID:	**R117445**	TestNo:	**SM4500-NO3**			Analysis Date:	**8/23/2017**	SeqNo:	**2746267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**CCB-4**	SampType:	**CCB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**117445**
Client ID:	**CCB**	Batch ID:	**R117445**	TestNo:	**SM4500-NO3**			Analysis Date:	**8/23/2017**	SeqNo:	**2746276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	**ICB**	SampType:	**ICB**	TestCode:	**4500N03F_W**	Units:	**mg/L**	Prep Date:		RunNo:	**117445**
Client ID:	**ICB**	Batch ID:	**R117445**	TestNo:	**SM4500-NO3**			Analysis Date:	**8/22/2017**	SeqNo:	**2751999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117446**
Client ID: **ICB**	Batch ID: **R117446**	TestNo: **SM4500-NO3**		Analysis Date: **8/25/2017**	SeqNo: **2746278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117446**
Client ID: **CCB**	Batch ID: **R117446**	TestNo: **SM4500-NO3**		Analysis Date: **8/25/2017**	SeqNo: **2746287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117446**
Client ID: **CCB**	Batch ID: **R117446**	TestNo: **SM4500-NO3**		Analysis Date: **8/25/2017**	SeqNo: **2746293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
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702-307-2659
702-307-2691
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Time start: 08-22-2017 19:11
Time end: 08-22-2017 20:49

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:29:26	0.0136		0.0317
2	<BLANK>	20:30:26	0.0170		0.0326
3	<CAL1>	20:31:21	0.0140	[0]	0.0318
4	<CAL2>	20:32:21	0.0612	[0.05]	0.0445
5	<CAL3>	20:33:17	0.1103	[0.1]	0.0577
6	<CAL4>	20:34:00	0.4886	[0.5]	0.1594
7	<CAL5>	20:34:48	0.9475	[1]	0.2828
8	<CAL6>	20:35:37	2.0283	[2]	0.5734
9	,BLANK,BLANK,1,	20:36:19	0.0259		0.0350
10	,ICV,ICV,1,	20:37:02	0.5072		0.1644
11	,ICB,ICB,1,	20:37:50	0.0181		0.0329
12	,MB-H2O,MBLK,1,	20:38:33	0.0151		0.0321
13	,LCS-H2O,LCS,1,	20:39:17	0.4945		0.1610
14	,N0253493-001E,SAMP,1,	20:40:05	0.4075		0.1376
15	,N025493-001EDUP,DUP,1,	20:40:48	0.3807		0.1304
16	,N025493-001EMS,MS,1,	20:41:36	0.8218		0.2490
17	,N025493-001EMSD,MSD,1,	20:42:19	0.8642		0.2604
18	,N025026-009A,SAMP,10,	20:43:01	0.8772		0.2639
19	,N025026-009A,SAMP,20,	20:43:51	0.4343		0.1448
20	,N025175-008A,SAMP,10,	20:44:34	1.0717		0.3162
21	,N025175-008A,SAMP,20,	20:45:16	0.5462		0.1749
22	,CCV-1,CCV,1,	20:46:05	0.4927		0.1605
23	,CCB-1,CCB,1,	20:46:47	0.0196		0.0333
24	,BLANK,	20:47:31	0.0665		0.0459

reported ICAL,ICV & ICB only

8/31/2017

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Time start: 08-23-2017 16:14
Time end: 08-23-2017 18:42

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:08:30	0.0222		0.0340
2	<BLANK>	18:09:31	0.0185		0.0330
3	,CCV-1,CCV,1,	18:10:25	0.5012		0.1628
4	,CCB-1,CCB,1,	18:11:26	0.0248		0.0347
5	,MB-H2O,MBLK,1,	18:12:22	0.0181		0.0329
6	,LCS-H2O,LCS,1,	18:13:17	0.5057		0.1640
7	,N025493-002E,SAMP,1,	18:14:17	0.3978		0.1350
8	,N025493-002EDUP,DUP,1,	18:15:13	0.3900		0.1329
9	,N025493-002EMS,MS,1,	18:16:08	0.8385		0.2535
10	,N025493-002EMSD,MSD,1,	18:17:08	0.8438		0.2549
11	,N025493-003E,SAMP,1,	18:18:04	0.4004		0.1357
12	,N025493-004E,SAMP,1,	18:18:59	0.3867		0.1320
13	,N025493-005E,SAMP,1,	18:20:01	0.4034		0.1365
14	,BLANK,	18:20:55	0.0248		0.0347
15	,CCV-2,CCV,1,	18:21:56	0.4871		0.1590
16	,CCB-2,CCB,1,	18:22:51	0.0259		0.0350
17	,N025493-006E,SAMP,1,	18:23:45	0.4008		0.1358
18	,N025493-007E,SAMP,1,	18:24:47	0.4060		0.1372
19	,N025493-008E,SAMP,1,	18:25:42	0.4030		0.1364
20	,N025493-011E,SAMP,1,	18:26:32	0.4042		0.1367
21	,N025493-012E,SAMP,1,	18:27:14	0.4079		0.1377
22	,N025493-013E,SAMP,1,	18:28:03	0.4068		0.1374
23	,N025493-014E,SAMP,1,	18:28:45	0.4242		0.1421
24	,N025493-017E,SAMP,1,	18:29:28	0.3863		0.1319
25	,N025503-001E,SAMP,1,	18:30:16	0.4161		0.1399
26	,BLANK,	18:31:00	0.0229		0.0342

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	**,CCV-3,CCV,1,**	18:31:49	0.4901		0.1598
28	**,CCB-3,CCB,1,**	18:32:31	0.0218		0.0339
29	**,N025503-003E,SAMP,1,**	18:33:14	0.3908		0.1331
30	**,N025503-004E,SAMP,1,**	18:34:02	0.3893		0.1327
31	**,N025503-005E,SAMP,1,**	18:34:46	0.4254		0.1424
32	**,N025503-006E,SAMP,1,**	18:35:28	0.3967		0.1347
33	**,N025503-007E,SAMP,1,**	18:36:17	0.4112		0.1386
34	**,N025503-008E,SAMP,1,**	18:36:59	0.4012		0.1359
35	**,N025503-009E,SAMP,1,**	18:37:43	0.3989		0.1353
36	**,BLANK,**	18:38:32	0.0159		0.0323
37	**,CCV-3,CCV,1,**	18:39:14	0.4715		0.1548
38	**,CCB-3,CCB,1,**	18:39:57	0.0162		0.0324

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Time start: 08-25-2017 21:59
Time end: 08-25-2017 23:59

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	23:33:02	0.0109		0.0247
2	<BLANK>	23:34:03	0.0083		0.0240
3	<CAL1>	23:34:57	0.0134	[0]	0.0254
4	<CAL2>	23:35:58	0.0618	[0.05]	0.0387
5	<CAL3>	23:36:53	0.1146	[0.1]	0.0532
6	<CAL4>	23:37:48	0.4813	[0.5]	0.1540
7	<CAL5>	23:38:48	0.9504	[1]	0.2829
8	<CAL6>	23:39:43	2.0285	[2]	0.5792
9	,BLANK,BLANK,1,	23:40:45	0.0258		0.0288
10	,ICV,ICV,1,	23:41:40	0.5112		0.1622
11	,ICB,ICB,1,	23:42:40	0.0189		0.0269
12	,MB-H2O,MBLK,1,	23:43:23	0.0083		0.0240
13	,LCS-H2O,LCS,1,	23:44:11	0.5141		0.1630
14	,N025503-010E,SAMP,1,	23:44:55	0.4078		0.1338
15	,N025503-010EDUP,DUP,1,	23:45:38	0.4148		0.1357
16	,N025503-010EMS,MS,1,	23:46:26	0.8579		0.2575
17	,N025503-010EMSD,MSD,1,	23:47:09	0.9027		0.2698
18	,N025175-008A,PE,20,	23:47:57	0.5596		0.1755
19	,N025175-008A,PE,10,	23:48:41	1.0675		0.3151
20	,N025503-011E,SAMP,1,	23:49:23	0.4177		0.1365
21	,BLANK,	23:50:12	0.0182		0.0267
22	,CCV-1,CCV,1,	23:50:55	0.4955		0.1579
23	,CCB-1,CCB,1,	23:51:37	0.0145		0.0257
24	,N025503-012E,SAMP,1,	23:52:26	0.4089		0.1341
25	,N025503-013E,SAMP,1,	23:53:08	0.3871		0.1281
26	,N025503-014E,SAMP,1,	23:53:52	0.3969		0.1308

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	**,N025503-015E,SAMP,1,**	23:54:40	0.4384		0.1422
28	**,BLANK,**	23:55:23	0.0091		0.0242
29	**,CCV-2,CCV,1,**	23:56:12	0.5428		0.1709
30	**,CCB-2,CCB,1,**	23:56:54	0.0083		0.0240

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 08/23/17,8/25/17
Time Analyzed:07:11 PM
Analyzed By: REB

Reagent ID #
Ammonium Chloride reagent/Buffer: R170825B
Color reagent: R170825C
2% Copper Sulfate: R170825A
Ammonium Hydroxide: CINV-170424A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)
1) N025503-001E		6.77						
2) N025503-003E		8.57						
3) N025503-004E		8.33						
4) N025503-005E		7.64						
5) N025503-006E		8.25						
6) N025503-007E		6.75						
7) N025503-008E		7.84						
8) N025503-009E		8.02						
9) N025503-010E		8.30						
10) N025503-011E		8.06						
11) N025503-012E		8.24						
12) N025503-013E		8.33						
13) N025503-014E		8.18						
14) N025503-015E		8.37						
15)								
16)								
17)								
18)								
19)								
20)								
21)								
22)								
23)								

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63442
ASSET #: N025503
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/28/2017

Method: DISS

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 8/31/2017 Date: _____

2nd Level Reviewer 8/31/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N025503-001B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.01499 * 1 * (25/25) * 1000

Iron , ug/L = 14.99

Reporting results in two significant figures,

Iron , ug/L = 15

Since PQL of Iron , in ug/L = 20

Iron , ug/L = ND

% RSD SUMMARY

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	74.019	15	<PQL
Standard1	ICAL	1	Fe	0.02	0.45	15	PASS
Standard2	ICAL	1	Fe	0.05	1.48	15	PASS
Standard3	ICAL	1	Fe	2	0.15	15	PASS
Standard4	ICAL	1	Fe	5	0.66	15	PASS
Standard5	ICAL	1	Fe	7.5	0.29	15	PASS
Standard6	ICAL	1	Fe	10	0.11	15	PASS
Standard7	ICAL	1	Fe	20	0.037	15	PASS
ICV	ICV	1	Fe	9.9	0.14	15	PASS
ICB	ICB	1	Fe	0.004	36.85	15	<PQL
LLICV	CCV1	1	Fe	0.024	1.93	20	PASS
LLICV	CCV1	1	Fe	0.024	3.52	20	PASS
ICSA1	ICSA	1	Fe	184.5	0.21	15	PASS
ICSAB1	ICSAB	1	Fe	202.27	0.1	15	PASS
CCV1	CCV	1	Fe	10.14	0.14	15	PASS
CCB1	CCB	1	Fe	0.004	42.75	15	<PQL
CCV2	CCV	1	Fe	10.9	0.56	15	PASS
CCB2	CCB	1	Fe	0.0039	50.91	15	<PQL
CCV3	CCV	1	Fe	10.13	0.13	15	PASS
CCB3	CCB	1	Fe	0.0051	23.17	15	<PQL
CCV4	CCV	1	Fe	10.15	0.04	15	PASS
CCB4	CCB	1	Fe	0.005	36.38	15	<PQL
LLCCV1	CCV2	1	Fe	0.025	2.47	20	PASS
ICSA2	ICSA	1	Fe	185.17	0.042	15	PASS
ICSAB2	ICSAB	1	Fe	202.76	0.22	15	PASS
CCV5	CCV	1	Fe	10.13	0.032	15	PASS
CCB5	CCB	1	Fe	0.0057	50.87	15	<PQL
MB-63442	MBLK	1	Fe	-0.0011	43.37	15	<PQL
CCV6	CCV	1	Fe	10.12	0.16	15	PASS
CCB6	CCB	1	Fe	0.0058	39.42	15	<PQL
LCS-63442	LCS	1	Fe	0.1	0.52	15	PASS
N025503-001B	SAMP	1	Fe	0.015	2.25	15	PASS
N025503-001B	SAMP	5	Fe	0.0016	96.63	15	<PQL
N025503-001B-PS	PS	1	Fe	0.11	0.29	15	PASS
N025503-001B-MS	MS	1	Fe	0.12	0.87	15	PASS
N025503-001B-MSD	MSD	1	Fe	0.12	1.063	15	PASS
N025503-003B	SAMP	1	Fe	0.0025	13.59	15	PASS
N025503-004B	SAMP	1	Fe	50.83	28.93	15	NR!
N025503-005B	SAMP	1	Fe	227.15	10.44	15	PASS
N025503-006B	SAMP	1	Fe	-765.13	24.66	15	<PQL
CCV7	CCV	1	Fe	10.11	0.03	15	PASS
CCB7	CCB	1	Fe	0.0062	35.85	15	<PQL

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N025503-007B	SAMP	1	Fe	1633.2	57.03	15	NR!
N025503-008B	SAMP	1	Fe	-2800.9	105.12	15	<PQL
N025503-009B	SAMP	1	Fe	-560.13	46.16	15	<PQL
N025503-010B	SAMP	1	Fe	128.24	930.4	15	NR!
N025503-011B	SAMP	1	Fe	249.07	173.69	15	NR!
N025503-012B	SAMP	1	Fe	-230	18.55	15	<PQL
N025503-013B	SAMP	1	Fe	0.00024	173.4	15	<PQL
N025503-014B	SAMP	1	Fe	82.42	31.81	15	NR!
N025503-015B	SAMP	1	Fe	-900.21	185.4	15	<PQL
CCV8	CCV	1	Fe	10.59	0.48	15	PASS
CCB8	CCB	1	Fe	0.0068	19.11	15	<PQL
LLCCV2	CCV2	1	Fe	0.025	4.075	20	PASS
ICSA3	ICSA	1	Fe	184.43	0.032	15	PASS
ICSAB3	ICSAB	1	Fe	201.9	0.057	15	PASS
N025503-004B	SAMP	1	Fe	0.00079	44.61	15	<PQL
N025503-005B	SAMP	1	Fe	0.00086	98.87	15	<PQL
N025503-006B	SAMP	1	Fe	0.00016	187.43	15	<PQL
N025503-007B	SAMP	1	Fe	-0.0004	233.44	15	<PQL
N025503-008B	SAMP	1	Fe	-0.00063	71.013	15	<PQL
N025503-009B	SAMP	1	Fe	-0.00063	118.63	15	<PQL
N025503-010B	SAMP	1	Fe	-0.00049	251.047	15	<PQL
N025503-011B	SAMP	1	Fe	-0.00029	53.067	15	<PQL
N025503-012B	SAMP	1	Fe	-0.0011	13.44	15	PASS
N025503-014B	SAMP	1	Fe	-0.0017	21.41	15	<PQL
CCV9	CCV	1	Fe	10.47	0.62	15	PASS
CCB9	CCB	1	Fe	0.0036	23.47	15	<PQL
N025503-015B	SAMP	1	Fe	0.00013	525.91	15	<PQL
CCV10	CCV	1	Fe	8.68	27.48	15	NR!
CCV10	CCV	1	Fe	10.092	0.16	15	PASS
CCB10	CCB	1	Fe	0.0032	45.78	15	<PQL
CCV11	CCV	1	Fe	10.056	0.018	15	PASS
CCB11	CCB	1	Fe	0.0031	41.56	15	<PQL
LLCCV3	CCV2	1	Fe	0.026	1.79	20	PASS
ICSA4	ICSA	1	Fe	181.74	0.046	15	PASS
ICSAB4	ICSAB	1	Fe	199	0.094	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170828C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/28/2017	07:40:35 PM
2	Standard1	ICAL	1	08/28/2017	07:44:53 PM
3	Standard2	ICAL	1	08/28/2017	07:49:10 PM
11	Standard3	ICAL	1	08/28/2017	07:53:59 PM
12	Standard4	ICAL	1	08/28/2017	07:58:49 PM
6	Standard5	ICAL	1	08/28/2017	08:03:40 PM
7	Standard6	ICAL	1	08/28/2017	08:08:28 PM
8	Standard7	ICAL	1	08/28/2017	08:12:47 PM
9	ICV	ICV	1	08/28/2017	08:18:09 PM
1	ICB	ICB	1	08/28/2017	08:22:31 PM
2	LLICV	CCV1	1	08/28/2017	08:41:30 PM
2	LLICV	CCV1	1	08/28/2017	08:59:32 PM
4	ICSA1	ICSA	1	08/28/2017	09:03:50 PM
5	ICSAB1	ICSAB	1	08/28/2017	09:09:47 PM
38	MB-63439	MBLK	1	08/28/2017	09:15:45 PM
39	LCS-63439	LCS	1	08/28/2017	09:20:04 PM
40	N025493-001C	SAMP	1	08/28/2017	09:24:53 PM
41	N025493-001C	SAMP	5	08/28/2017	09:29:12 PM
42	N025493-001C-PS	PS	1	08/28/2017	09:34:01 PM
43	N025493-001C-MS	MS	1	08/28/2017	09:38:22 PM
44	N025493-001C-MSD	MSD	1	08/28/2017	09:42:43 PM
45	N025493-002C	SAMP	1	08/28/2017	09:47:04 PM
46	N025493-003C	SAMP	1	08/28/2017	09:51:23 PM
47	N025493-004C	SAMP	1	08/28/2017	09:56:12 PM
7	CCV1	CCV	1	08/28/2017	10:00:33 PM
1	CCB1	CCB	1	08/28/2017	10:04:53 PM
48	N025493-005C	SAMP	1	08/28/2017	10:09:11 PM
49	N025493-006C	SAMP	1	08/28/2017	10:13:31 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
50	N025493-007C	SAMP	1	08/28/2017	10:17:52 PM
51	N025493-008C	SAMP	1	08/28/2017	10:22:13 PM
52	N025493-011C	SAMP	1	08/28/2017	10:26:33 PM
53	N025493-012C	SAMP	1	08/28/2017	10:30:54 PM
54	N025493-013C	SAMP	1	08/28/2017	10:35:13 PM
55	N025493-014C	SAMP	1	08/28/2017	10:39:33 PM
56	N025493-017C	SAMP	1	08/28/2017	10:43:52 PM
38	MB-63439	MBLK	1	08/28/2017	10:48:45 PM
7	CCV2	CCV	1	08/28/2017	10:53:04 PM
1	CCB2	CCB	1	08/28/2017	10:58:54 PM
57	MB-63440	MBLK	1	08/28/2017	11:03:10 PM
58	LCS-63440	LCS	1	08/28/2017	11:07:28 PM
59	N025493-001B	SAMP	1	08/28/2017	11:12:17 PM
60	N025493-001B	SAMP	5	08/28/2017	11:16:37 PM
61	N025493-001B-PS	PS	1	08/28/2017	11:21:26 PM
62	N025493-001B-MS	MS	1	08/28/2017	11:26:17 PM
63	N025493-001B-MSD	MSD	1	08/28/2017	11:31:06 PM
64	N025493-002B	SAMP	1	08/28/2017	11:35:26 PM
65	N025493-003B	SAMP	1	08/28/2017	11:39:46 PM
66	N025493-004B	SAMP	1	08/28/2017	11:44:05 PM
7	CCV3	CCV	1	08/28/2017	11:48:24 PM
1	CCB3	CCB	1	08/28/2017	11:52:43 PM
67	N025493-005B	SAMP	1	08/28/2017	11:57:01 PM
68	N025493-006B	SAMP	1	08/29/2017	12:01:19 AM
69	N025493-007B	SAMP	1	08/29/2017	12:05:39 AM
70	N025493-008B	SAMP	1	08/29/2017	12:10:29 AM
71	N025493-011B	SAMP	1	08/29/2017	12:15:20 AM
72	N025493-012B	SAMP	1	08/29/2017	12:19:40 AM
73	N025493-013B	SAMP	1	08/29/2017	12:24:00 AM
74	N025493-014B	SAMP	1	08/29/2017	12:28:52 AM
75	N025493-017B	SAMP	1	08/29/2017	12:33:12 AM
98	MB-63441	MBLK	1	08/29/2017	12:37:32 AM
7	CCV4	CCV	1	08/29/2017	12:41:52 AM
1	CCB4	CCB	1	08/29/2017	12:46:12 AM
2	LLCCV1	CCV2	1	08/29/2017	12:50:28 AM
4	ICSA2	ICSA	1	08/29/2017	12:54:46 AM
5	ICSAB2	ICSAB	1	08/29/2017	01:00:41 AM
99	LCS-63441	LCS	1	08/29/2017	01:06:39 AM
100	N025503-001C	SAMP	1	08/29/2017	01:11:30 AM
101	N025503-001C	SAMP	5	08/29/2017	01:15:52 AM
102	N025503-001C-PS	PS	1	08/29/2017	01:20:43 AM
103	N025503-001C-MS	MS	1	08/29/2017	01:25:05 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	01:29:27 AM
105	N025503-003C	SAMP	1	08/29/2017	01:33:49 AM
106	N025503-004C	SAMP	1	08/29/2017	01:38:53 AM
107	N025503-005C	SAMP	1	08/29/2017	01:43:14 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
108	N025503-006C	SAMP	1	08/29/2017	01:48:06 AM
7	CCV5	CCV	1	08/29/2017	01:52:27 AM
1	CCB5	CCB	1	08/29/2017	01:56:47 AM
109	N025503-007C	SAMP	1	08/29/2017	02:01:05 AM
110	N025503-008C	SAMP	1	08/29/2017	02:05:26 AM
111	N025503-009C	SAMP	1	08/29/2017	02:10:17 AM
112	N025503-010C	SAMP	1	08/29/2017	02:14:39 AM
113	N025503-011C	SAMP	1	08/29/2017	02:19:33 AM
114	N025503-012C	SAMP	1	08/29/2017	02:23:55 AM
115	N025503-013C	SAMP	1	08/29/2017	02:28:17 AM
116	N025503-014C	SAMP	1	08/29/2017	02:33:08 AM
117	N025503-015C	SAMP	1	08/29/2017	02:37:30 AM
118	MB-63442	MBLK	1	08/29/2017	02:42:22 AM
7	CCV6	CCV	1	08/29/2017	02:46:44 AM
1	CCB6	CCB	1	08/29/2017	02:51:04 AM
119	LCS-63442	LCS	1	08/29/2017	02:55:22 AM
120	N025503-001B	SAMP	1	08/29/2017	03:00:13 AM
121	N025503-001B	SAMP	5	08/29/2017	03:04:35 AM
122	N025503-001B-PS	PS	1	08/29/2017	03:09:26 AM
123	N025503-001B-MS	MS	1	08/29/2017	03:14:19 AM
124	N025503-001B-MSD	MSD	1	08/29/2017	03:18:42 AM
125	N025503-003B	SAMP	1	08/29/2017	03:23:35 AM
126	N025503-004B	SAMP	1	08/29/2017	03:28:27 AM
127	N025503-005B	SAMP	1	08/29/2017	03:33:48 AM
128	N025503-006B	SAMP	1	08/29/2017	03:39:09 AM
7	CCV7	CCV	1	08/29/2017	03:43:29 AM
1	CCB7	CCB	1	08/29/2017	03:47:49 AM
129	N025503-007B	SAMP	1	08/29/2017	03:52:07 AM
130	N025503-008B	SAMP	1	08/29/2017	03:57:47 AM
131	N025503-009B	SAMP	1	08/29/2017	04:02:08 AM
132	N025503-010B	SAMP	1	08/29/2017	04:06:29 AM
133	N025503-011B	SAMP	1	08/29/2017	04:11:50 AM
134	N025503-012B	SAMP	1	08/29/2017	04:17:10 AM
135	N025503-013B	SAMP	1	08/29/2017	04:21:31 AM
136	N025503-014B	SAMP	1	08/29/2017	04:26:23 AM
137	N025503-015B	SAMP	1	08/29/2017	04:31:44 AM
7	CCV8	CCV	1	08/29/2017	04:36:05 AM
1	CCB8	CCB	1	08/29/2017	04:40:54 AM
2	LLCCV2	CCV2	1	08/29/2017	04:45:12 AM
4	ICSA3	ICSA	1	08/29/2017	04:49:30 AM
5	ICSAB3	ICSAB	1	08/29/2017	04:55:26 AM
126	N025503-004B	SAMP	1	08/29/2017	07:49:44 AM
127	N025503-005B	SAMP	1	08/29/2017	07:54:06 AM
128	N025503-006B	SAMP	1	08/29/2017	07:58:58 AM
129	N025503-007B	SAMP	1	08/29/2017	08:03:48 AM
130	N025503-008B	SAMP	1	08/29/2017	08:08:40 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
131	N025503-009B	SAMP	1	08/29/2017	08:13:03 AM
132	N025503-010B	SAMP	1	08/29/2017	08:17:56 AM
133	N025503-011B	SAMP	1	08/29/2017	08:22:18 AM
134	N025503-012B	SAMP	1	08/29/2017	08:27:12 AM
136	N025503-014B	SAMP	1	08/29/2017	08:31:33 AM
7	CCV9	CCV	1	08/29/2017	08:35:55 AM
1	CCB9	CCB	1	08/29/2017	08:40:44 AM
137	N025503-015B	SAMP	1	08/29/2017	08:45:00 AM
40	N025493-001C	SAMP	1	08/29/2017	08:49:22 AM
41	N025493-001C	SAMP	5	08/29/2017	08:53:43 AM
45	N025493-002C	SAMP	1	08/29/2017	08:58:32 AM
64	N025493-002B	SAMP	1	08/29/2017	09:03:23 AM
50	N025493-007C	SAMP	1	08/29/2017	09:07:43 AM
69	N025493-007B	SAMP	1	08/29/2017	09:12:04 AM
99	LCS-63441	LCS	1	08/29/2017	09:16:24 AM
100	N025503-001C	SAMP	1	08/29/2017	09:21:14 AM
101	N025503-001C	SAMP	5	08/29/2017	09:25:36 AM
7	CCV10	CCV	1	08/29/2017	09:30:27 AM
7	CCV10	CCV	1	08/29/2017	09:40:30 AM
1	CCB10	CCB	1	08/29/2017	09:45:49 AM
102	N025503-001C-PS	PS	1	08/29/2017	09:50:28 AM
103	N025503-001C-MS	MS	1	08/29/2017	09:54:50 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	09:59:12 AM
7	CCV11	CCV	1	08/29/2017	10:03:34 AM
1	CCB11	CCB	1	08/29/2017	10:07:54 AM
2	LLCCV3	CCV2	1	08/29/2017	10:12:12 AM
4	ICSA4	ICSA	1	08/29/2017	10:16:31 AM
5	ICSAB4	ICSAB	1	08/29/2017	10:22:27 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**

Reviewed/ Date: 8/31/2017

Initials/ Date: 8/31/2017

Prep Batch **63442** Prep Code: **3010_W_DISS** Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63442	Aqueous		25	☐	0	0	25	1.000		
MB-63442	Aqueous		25	☐	0	0	25	1.000		
N025503-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-011B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**

Reviewed/ Date: 8/31/2017

Initials/ Date: 8/31/2017

Prep Batch **63442** Prep Code: **3010_W_DISS** Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025503-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-015B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170828C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	08/28/2017	07:40:35 PM	Fe	273.953	9	0.00	mg/L	
Standard1	08/28/2017	07:44:53 PM	Fe	273.953	342	0.0200	mg/L	
Standard2	08/28/2017	07:49:10 PM	Fe	273.953	898	0.050	mg/L	
Standard3	08/28/2017	07:53:59 PM	Fe	273.953	28576	2.000	mg/L	
Standard4	08/28/2017	07:58:49 PM	Fe	273.953	72598	5.000	mg/L	
Standard5	08/28/2017	08:03:40 PM	Fe	273.953	109250	7.500	mg/L	
Standard6	08/28/2017	08:08:28 PM	Fe	273.953	144978	10.000	mg/L	
Standard7	08/28/2017	08:12:47 PM	Fe	273.953	283932	20.000	mg/L	0.9999

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9899.956	20	10000	0	99.0	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	23.660	20	20.00	0	118	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10138.018	20	10000	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10901.811	20	10000	0	109	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749359**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10128.764	20	10000	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	CCV4	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCV	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749371

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10154.691	20	10000	0	102	90	110				

Sample ID	LLCCV1	SampType:	CCV2	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	ZZZZZZ	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749373

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.204	20	20.00	0	126	70	130				

Sample ID	CCV5	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCV	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749386

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10131.519	20	10000	0	101	90	110				

Sample ID	CCV6	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCV	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749398

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10122.257	20	10000	0	101	90	110				

Sample ID	CCV7	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCV	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749410

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10108.606	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10591.941	20	10000	0	106	90	110				

Sample ID **LLCCV2**	SampType: **CCV2**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.087	20	20.00	0	125	70	130				

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10474.141	20	10000	0	105	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10092.325	20	10000	0	101	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCV**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10055.905	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **LLCCV3**	SampType: **CCV2**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ZZZZZZ**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.675	20	20.00	0	128	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.984	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.856	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.104	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.004	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	CCB5	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749387

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.699	20									

Sample ID	CCB6	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749399

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.774	20									

Sample ID	CCB7	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749411

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.186	20									

Sample ID	CCB8	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749422

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.813	20									

Sample ID	CCB9	SampType:	CCB	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	117504
Client ID:	CCB	Batch ID:	R117504	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749437

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.624	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.193	20									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **CCB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.131	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSA**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465766.671	50	500000	0	93.2	80	120				
Calcium	494633.092	500	500000	0	98.9	80	120				
Iron	184498.387	20	200000	0	92.2	80	120				
Magnesium	526449.321	100	500000	0	105	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSAB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533097.646	50	500000	0	107	80	120				
Calcium	575379.393	500	500000	0	115	80	120				
Iron	202270.742	20	200000	0	101	80	120				
Magnesium	543253.109	100	500000	0	109	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSA**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	466818.378	50	500000	0	93.4	80	120				
Calcium	499958.936	500	500000	0	100	80	120				
Iron	185172.108	20	200000	0	92.6	80	120				
Magnesium	535246.797	100	500000	0	107	80	120				

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSAB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533860.429	50	500000	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSAB** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	573744.357	500	500000	0	115	80	120				
Iron	202758.631	20	200000	0	101	80	120				
Magnesium	549586.986	100	500000	0	110	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSA** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465186.783	50	500000	0	93.0	80	120				
Calcium	495491.808	500	500000	0	99.1	80	120				
Iron	184433.430	20	200000	0	92.2	80	120				
Magnesium	531400.271	100	500000	0	106	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSAB** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532075.492	50	500000	0	106	80	120				
Calcium	572003.679	500	500000	0	114	80	120				
Iron	201902.135	20	200000	0	101	80	120				
Magnesium	547348.927	100	500000	0	109	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **117504**
Client ID: **ICSA** Batch ID: **R117504** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	462000.971	50	500000	0	92.4	80	120				
Calcium	489292.029	500	500000	0	97.9	80	120				
Iron	181735.644	20	200000	0	90.9	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSA**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	500001.294	100	500000	0	100	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID: **ICSAB**	Batch ID: **R117504**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	528646.042	50	500000	0	106	80	120				
Calcium	565699.973	500	500000	0	113	80	120				
Iron	199003.524	20	200000	0	99.5	80	120				
Magnesium	515829.827	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0039	100.39	65-125	PASS
Standard2	ICAL	1	1.018	101.79	65-125	PASS
Standard3	ICAL	1	1	99.9	65-125	PASS
Standard4	ICAL	1	0.99	99.32	65-125	PASS
Standard5	ICAL	1	0.98	98.068	65-125	PASS
Standard6	ICAL	1	0.98	97.95	65-125	PASS
Standard7	ICAL	1	0.96	95.97	65-125	PASS
ICV	ICV	1	0.97	97.14	65-125	PASS
ICB	ICB	1	1	99.82	65-125	PASS
LLICV	CCV1	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.86	65-125	PASS
ICSA1	ICSA	1	1.13	113.38	65-125	PASS
ICSAB1	ICSAB	1	1.046	104.56	65-125	PASS
CCV1	CCV	1	0.97	97.11	65-125	PASS
CCB1	CCB	1	1.0005	100.05	65-125	PASS
CCV2	CCV	1	0.96	96.39	65-125	PASS
CCB2	CCB	1	1.0076	100.76	65-125	PASS
CCV3	CCV	1	0.99	98.53	65-125	PASS
CCB3	CCB	1	0.98	98.5	65-125	PASS
CCV4	CCV	1	0.99	98.53	65-125	PASS
CCB4	CCB	1	1.01	101.02	65-125	PASS
LLCCV1	CCV2	1	1.013	101.27	65-125	PASS
ICSA2	ICSA	1	1.15	115.21	65-125	PASS
ICSAB2	ICSAB	1	1.068	106.84	65-125	PASS
CCV5	CCV	1	1.0002	100.02	65-125	PASS
CCB5	CCB	1	1.023	102.33	65-125	PASS
MB-63442	MBLK	1	1.013	101.26	65-125	PASS
CCV6	CCV	1	0.98	98.27	65-125	PASS
CCB6	CCB	1	1.0046	100.46	65-125	PASS
LCS-63442	LCS	1	0.92	92.035	65-125	PASS
N025503-001B	SAMP	1	1.062	106.19	65-125	PASS
N025503-001B	SAMP	5	1.0027	100.27	65-125	PASS
N025503-001B-PS	PS	1	1.02	101.99	65-125	PASS
N025503-001B-MS	MS	1	1.045	104.52	65-125	PASS
N025503-001B-MSD	MSD	1	1.016	101.61	65-125	PASS
N025503-003B	SAMP	1	1.022	102.25	65-125	PASS
N025503-004B	SAMP	1	0.00012	0.012	65-125	NR!
N025503-005B	SAMP	1	0.00003	0.003	65-125	NR!
N025503-006B	SAMP	1	-0.00002	-0.002	65-125	NR!
CCV7	CCV	1	0.98	97.63	65-125	PASS

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCB7	CCB	1	0.98	97.81	65-125	PASS
N025503-007B	SAMP	1	0.00008	0.008	65-125	NR!
N025503-008B	SAMP	1	-0.00002	-0.002	65-125	NR!
N025503-009B	SAMP	1	-0.00004	-0.004	65-125	NR!
N025503-010B	SAMP	1	-0.00002	-0.002	65-125	NR!
N025503-011B	SAMP	1	0	0	65-125	NR!
N025503-012B	SAMP	1	-0.00006	-0.006	65-125	NR!
N025503-013B	SAMP	1	1.047	104.71	65-125	PASS
N025503-014B	SAMP	1	0.00013	0.013	65-125	NR!
N025503-015B	SAMP	1	0	0	65-125	NR!
CCV8	CCV	1	0.97	97.028	65-125	PASS
CCB8	CCB	1	1	99.6	65-125	PASS
LLCCV2	CCV2	1	0.99	99.19	65-125	PASS
ICSA3	ICSA	1	1.13	112.93	65-125	PASS
ICSAB3	ICSAB	1	1.038	103.82	65-125	PASS
N025503-004B	SAMP	1	1.024	102.4	65-125	PASS
N025503-005B	SAMP	1	1.033	103.28	65-125	PASS
N025503-006B	SAMP	1	1.05	104.99	65-125	PASS
N025503-007B	SAMP	1	1.037	103.66	65-125	PASS
N025503-008B	SAMP	1	1.056	105.55	65-125	PASS
N025503-009B	SAMP	1	1.072	107.16	65-125	PASS
N025503-010B	SAMP	1	1.057	105.72	65-125	PASS
N025503-011B	SAMP	1	1.053	105.32	65-125	PASS
N025503-012B	SAMP	1	1.025	102.5	65-125	PASS
N025503-014B	SAMP	1	1.033	103.29	65-125	PASS
CCV9	CCV	1	0.99	98.74	65-125	PASS
CCB9	CCB	1	1.011	101.08	65-125	PASS
N025503-015B	SAMP	1	1.043	104.33	65-125	PASS
CCV10	CCV	1	0.46	45.72	65-125	NR!
CCV10	CCV	1	0.99	99.17	65-125	PASS
CCB10	CCB	1	1.015	101.54	65-125	PASS
CCV11	CCV	1	1.015	101.46	65-125	PASS
CCB11	CCB	1	1.035	103.48	65-125	PASS
LLCCV3	CCV2	1	1.026	102.58	65-125	PASS
ICSA4	ICSA	1	1.19	119.24	65-125	PASS
ICSAB4	ICSAB	1	1.1	110.43	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025503
Test Method: EPA 6010B
Analysis Date: 8/28/2017

Matrix: Groundwater
Batch No.: 63442

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025503-001B DT 5X	Iron	ug/L	0	NA	14.98761	100.00%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	**N025503-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **117504**
Client ID:	**ZZZZZZ**	Batch ID: **63442**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	106.225	20	100.0	14.99	91.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

EPA 6010B

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63441
ASSET #: N025503

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 8/28/2017

Method:

[X] EPA 6010B / 200.7 Total
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer _____ 8/31/2017 Date: _____

2nd Level Reviewer _____ 8/31/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N025503-001C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.02162 * 1 * (25/25) * 1000

Iron , ug/L = 21.62

Reporting results in two significant figures,

Iron , ug/L = 22

% RSD SUMMARY

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	74.019	15	<PQL
Standard1	ICAL	1	Fe	0.02	0.45	15	PASS
Standard2	ICAL	1	Fe	0.05	1.48	15	PASS
Standard3	ICAL	1	Fe	2	0.15	15	PASS
Standard4	ICAL	1	Fe	5	0.66	15	PASS
Standard5	ICAL	1	Fe	7.5	0.29	15	PASS
Standard6	ICAL	1	Fe	10	0.11	15	PASS
Standard7	ICAL	1	Fe	20	0.037	15	PASS
ICV	ICV	1	Fe	9.9	0.14	15	PASS
ICB	ICB	1	Fe	0.004	36.85	15	<PQL
LLICV	CCV1	1	Fe	0.024	1.93	20	PASS
LLICV	CCV1	1	Fe	0.024	3.52	20	PASS
ICSA1	ICSA	1	Fe	184.5	0.21	15	PASS
ICSAB1	ICSAB	1	Fe	202.27	0.1	15	PASS
CCV1	CCV	1	Fe	10.14	0.14	15	PASS
CCB1	CCB	1	Fe	0.004	42.75	15	<PQL
CCV2	CCV	1	Fe	10.9	0.56	15	PASS
CCB2	CCB	1	Fe	0.0039	50.91	15	<PQL
CCV3	CCV	1	Fe	10.13	0.13	15	PASS
CCB3	CCB	1	Fe	0.0051	23.17	15	<PQL
MB-63441	MBLK	1	Fe	-0.0017	26.44	15	<PQL
CCV4	CCV	1	Fe	10.15	0.04	15	PASS
CCB4	CCB	1	Fe	0.005	36.38	15	<PQL
LLCCV1	CCV2	1	Fe	0.025	2.47	20	PASS
ICSA2	ICSA	1	Fe	185.17	0.042	15	PASS
ICSAB2	ICSAB	1	Fe	202.76	0.22	15	PASS
LCS-63441	LCS	1	Fe	0.14	7.15	15	PASS
N025503-001C	SAMP	1	Fe	0.082	3.94	15	PASS
N025503-001C	SAMP	5	Fe	0.017	3.8	15	PASS
N025503-001C-PS	PS	1	Fe	0.15	0.8	15	PASS
N025503-001C-MS	MS	1	Fe	0.53	0.31	15	PASS
N025503-001C-MSD	MSD	1	Fe	0.52	0.46	15	PASS
N025503-003C	SAMP	1	Fe	0.14	1.21	15	PASS
N025503-004C	SAMP	1	Fe	0.04	2.41	15	PASS
N025503-005C	SAMP	1	Fe	0.44	0.62	15	PASS
N025503-006C	SAMP	1	Fe	0.38	0.74	15	PASS
CCV5	CCV	1	Fe	10.13	0.032	15	PASS
CCB5	CCB	1	Fe	0.0057	50.87	15	<PQL
N025503-007C	SAMP	1	Fe	0.04	0.81	15	PASS
N025503-008C	SAMP	1	Fe	0.049	1.66	15	PASS
N025503-009C	SAMP	1	Fe	0.07	1.14	15	PASS
N025503-010C	SAMP	1	Fe	0.029	1.54	15	PASS

NR

RSD SUMMARY: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N025503-011C	SAMP	1	Fe	0.12	0.67	15	PASS
N025503-012C	SAMP	1	Fe	0.043	2.15	15	PASS
N025503-013C	SAMP	1	Fe	0.059	0.88	15	PASS
N025503-014C	SAMP	1	Fe	0.12	0.2	15	PASS
N025503-015C	SAMP	1	Fe	0.033	1.4	15	PASS
CCV6	CCV	1	Fe	10.12	0.16	15	PASS
CCB6	CCB	1	Fe	0.0058	39.42	15	<PQL
CCV7	CCV	1	Fe	10.11	0.03	15	PASS
CCB7	CCB	1	Fe	0.0062	35.85	15	<PQL
CCV8	CCV	1	Fe	10.59	0.48	15	PASS
CCB8	CCB	1	Fe	0.0068	19.11	15	<PQL
LLCCV2	CCV2	1	Fe	0.025	4.075	20	PASS
ICSA3	ICSA	1	Fe	184.43	0.032	15	PASS
ICSAB3	ICSAB	1	Fe	201.9	0.057	15	PASS
CCV9	CCV	1	Fe	10.47	0.62	15	PASS
CCB9	CCB	1	Fe	0.0036	23.47	15	<PQL
LCS-63441	LCS	1	Fe	0.11	0.78	15	PASS
N025503-001C	SAMP	1	Fe	0.022	6.12	15	PASS
N025503-001C	SAMP	5	Fe	0.0038	44.68	15	<PQL
CCV10	CCV	1	Fe	8.68	27.48	15	NR!
CCV10	CCV	1	Fe	10.092	0.16	15	PASS
CCB10	CCB	1	Fe	0.0032	45.78	15	<PQL
N025503-001C-PS	PS	1	Fe	0.12	0.66	15	PASS
N025503-001C-MS	MS	1	Fe	0.12	0.57	15	PASS
N025503-001C-MSD	MSD	1	Fe	0.11	0.41	15	PASS
CCV11	CCV	1	Fe	10.056	0.018	15	PASS
CCB11	CCB	1	Fe	0.0031	41.56	15	<PQL
LLCCV3	CCV2	1	Fe	0.026	1.79	20	PASS
ICSA4	ICSA	1	Fe	181.74	0.046	15	PASS
ICSAB4	ICSAB	1	Fe	199	0.094	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170828C

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	08/28/2017	07:40:35 PM
2	Standard1	ICAL	1	08/28/2017	07:44:53 PM
3	Standard2	ICAL	1	08/28/2017	07:49:10 PM
11	Standard3	ICAL	1	08/28/2017	07:53:59 PM
12	Standard4	ICAL	1	08/28/2017	07:58:49 PM
6	Standard5	ICAL	1	08/28/2017	08:03:40 PM
7	Standard6	ICAL	1	08/28/2017	08:08:28 PM
8	Standard7	ICAL	1	08/28/2017	08:12:47 PM
9	ICV	ICV	1	08/28/2017	08:18:09 PM
1	ICB	ICB	1	08/28/2017	08:22:31 PM
2	LLICV	CCV1	1	08/28/2017	08:41:30 PM
2	LLICV	CCV1	1	08/28/2017	08:59:32 PM
4	ICSA1	ICSA	1	08/28/2017	09:03:50 PM
5	ICSAB1	ICSAB	1	08/28/2017	09:09:47 PM
38	MB-63439	MBLK	1	08/28/2017	09:15:45 PM
39	LCS-63439	LCS	1	08/28/2017	09:20:04 PM
40	N025493-001C	SAMP	1	08/28/2017	09:24:53 PM
41	N025493-001C	SAMP	5	08/28/2017	09:29:12 PM
42	N025493-001C-PS	PS	1	08/28/2017	09:34:01 PM
43	N025493-001C-MS	MS	1	08/28/2017	09:38:22 PM
44	N025493-001C-MSD	MSD	1	08/28/2017	09:42:43 PM
45	N025493-002C	SAMP	1	08/28/2017	09:47:04 PM
46	N025493-003C	SAMP	1	08/28/2017	09:51:23 PM
47	N025493-004C	SAMP	1	08/28/2017	09:56:12 PM
7	CCV1	CCV	1	08/28/2017	10:00:33 PM
1	CCB1	CCB	1	08/28/2017	10:04:53 PM
48	N025493-005C	SAMP	1	08/28/2017	10:09:11 PM
49	N025493-006C	SAMP	1	08/28/2017	10:13:31 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
50	N025493-007C	SAMP	1	08/28/2017	10:17:52 PM
51	N025493-008C	SAMP	1	08/28/2017	10:22:13 PM
52	N025493-011C	SAMP	1	08/28/2017	10:26:33 PM
53	N025493-012C	SAMP	1	08/28/2017	10:30:54 PM
54	N025493-013C	SAMP	1	08/28/2017	10:35:13 PM
55	N025493-014C	SAMP	1	08/28/2017	10:39:33 PM
56	N025493-017C	SAMP	1	08/28/2017	10:43:52 PM
38	MB-63439	MBLK	1	08/28/2017	10:48:45 PM
7	CCV2	CCV	1	08/28/2017	10:53:04 PM
1	CCB2	CCB	1	08/28/2017	10:58:54 PM
57	MB-63440	MBLK	1	08/28/2017	11:03:10 PM
58	LCS-63440	LCS	1	08/28/2017	11:07:28 PM
59	N025493-001B	SAMP	1	08/28/2017	11:12:17 PM
60	N025493-001B	SAMP	5	08/28/2017	11:16:37 PM
61	N025493-001B-PS	PS	1	08/28/2017	11:21:26 PM
62	N025493-001B-MS	MS	1	08/28/2017	11:26:17 PM
63	N025493-001B-MSD	MSD	1	08/28/2017	11:31:06 PM
64	N025493-002B	SAMP	1	08/28/2017	11:35:26 PM
65	N025493-003B	SAMP	1	08/28/2017	11:39:46 PM
66	N025493-004B	SAMP	1	08/28/2017	11:44:05 PM
7	CCV3	CCV	1	08/28/2017	11:48:24 PM
1	CCB3	CCB	1	08/28/2017	11:52:43 PM
67	N025493-005B	SAMP	1	08/28/2017	11:57:01 PM
68	N025493-006B	SAMP	1	08/29/2017	12:01:19 AM
69	N025493-007B	SAMP	1	08/29/2017	12:05:39 AM
70	N025493-008B	SAMP	1	08/29/2017	12:10:29 AM
71	N025493-011B	SAMP	1	08/29/2017	12:15:20 AM
72	N025493-012B	SAMP	1	08/29/2017	12:19:40 AM
73	N025493-013B	SAMP	1	08/29/2017	12:24:00 AM
74	N025493-014B	SAMP	1	08/29/2017	12:28:52 AM
75	N025493-017B	SAMP	1	08/29/2017	12:33:12 AM
98	MB-63441	MBLK	1	08/29/2017	12:37:32 AM
7	CCV4	CCV	1	08/29/2017	12:41:52 AM
1	CCB4	CCB	1	08/29/2017	12:46:12 AM
2	LLCCV1	CCV2	1	08/29/2017	12:50:28 AM
4	ICSA2	ICSA	1	08/29/2017	12:54:46 AM
5	ICSAB2	ICSAB	1	08/29/2017	01:00:41 AM
99	LCS-63441	LCS	1	08/29/2017	01:06:39 AM
100	N025503-001C	SAMP	1	08/29/2017	01:11:30 AM
101	N025503-001C	SAMP	5	08/29/2017	01:15:52 AM
102	N025503-001C-PS	PS	1	08/29/2017	01:20:43 AM
103	N025503-001C-MS	MS	1	08/29/2017	01:25:05 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	01:29:27 AM
105	N025503-003C	SAMP	1	08/29/2017	01:33:49 AM
106	N025503-004C	SAMP	1	08/29/2017	01:38:53 AM
107	N025503-005C	SAMP	1	08/29/2017	01:43:14 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
108	N025503-006C	SAMP	1	08/29/2017	01:48:06 AM
7	CCV5	CCV	1	08/29/2017	01:52:27 AM
1	CCB5	CCB	1	08/29/2017	01:56:47 AM
109	N025503-007C	SAMP	1	08/29/2017	02:01:05 AM
110	N025503-008C	SAMP	1	08/29/2017	02:05:26 AM
111	N025503-009C	SAMP	1	08/29/2017	02:10:17 AM
112	N025503-010C	SAMP	1	08/29/2017	02:14:39 AM
113	N025503-011C	SAMP	1	08/29/2017	02:19:33 AM
114	N025503-012C	SAMP	1	08/29/2017	02:23:55 AM
115	N025503-013C	SAMP	1	08/29/2017	02:28:17 AM
116	N025503-014C	SAMP	1	08/29/2017	02:33:08 AM
117	N025503-015C	SAMP	1	08/29/2017	02:37:30 AM
118	MB-63442	MBLK	1	08/29/2017	02:42:22 AM
7	CCV6	CCV	1	08/29/2017	02:46:44 AM
1	CCB6	CCB	1	08/29/2017	02:51:04 AM
119	LCS-63442	LCS	1	08/29/2017	02:55:22 AM
120	N025503-001B	SAMP	1	08/29/2017	03:00:13 AM
121	N025503-001B	SAMP	5	08/29/2017	03:04:35 AM
122	N025503-001B-PS	PS	1	08/29/2017	03:09:26 AM
123	N025503-001B-MS	MS	1	08/29/2017	03:14:19 AM
124	N025503-001B-MSD	MSD	1	08/29/2017	03:18:42 AM
125	N025503-003B	SAMP	1	08/29/2017	03:23:35 AM
126	N025503-004B	SAMP	1	08/29/2017	03:28:27 AM
127	N025503-005B	SAMP	1	08/29/2017	03:33:48 AM
128	N025503-006B	SAMP	1	08/29/2017	03:39:09 AM
7	CCV7	CCV	1	08/29/2017	03:43:29 AM
1	CCB7	CCB	1	08/29/2017	03:47:49 AM
129	N025503-007B	SAMP	1	08/29/2017	03:52:07 AM
130	N025503-008B	SAMP	1	08/29/2017	03:57:47 AM
131	N025503-009B	SAMP	1	08/29/2017	04:02:08 AM
132	N025503-010B	SAMP	1	08/29/2017	04:06:29 AM
133	N025503-011B	SAMP	1	08/29/2017	04:11:50 AM
134	N025503-012B	SAMP	1	08/29/2017	04:17:10 AM
135	N025503-013B	SAMP	1	08/29/2017	04:21:31 AM
136	N025503-014B	SAMP	1	08/29/2017	04:26:23 AM
137	N025503-015B	SAMP	1	08/29/2017	04:31:44 AM
7	CCV8	CCV	1	08/29/2017	04:36:05 AM
1	CCB8	CCB	1	08/29/2017	04:40:54 AM
2	LLCCV2	CCV2	1	08/29/2017	04:45:12 AM
4	ICSA3	ICSA	1	08/29/2017	04:49:30 AM
5	ICSAB3	ICSAB	1	08/29/2017	04:55:26 AM
126	N025503-004B	SAMP	1	08/29/2017	07:49:44 AM
127	N025503-005B	SAMP	1	08/29/2017	07:54:06 AM
128	N025503-006B	SAMP	1	08/29/2017	07:58:58 AM
129	N025503-007B	SAMP	1	08/29/2017	08:03:48 AM
130	N025503-008B	SAMP	1	08/29/2017	08:08:40 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
131	N025503-009B	SAMP	1	08/29/2017	08:13:03 AM
132	N025503-010B	SAMP	1	08/29/2017	08:17:56 AM
133	N025503-011B	SAMP	1	08/29/2017	08:22:18 AM
134	N025503-012B	SAMP	1	08/29/2017	08:27:12 AM
136	N025503-014B	SAMP	1	08/29/2017	08:31:33 AM
7	CCV9	CCV	1	08/29/2017	08:35:55 AM
1	CCB9	CCB	1	08/29/2017	08:40:44 AM
137	N025503-015B	SAMP	1	08/29/2017	08:45:00 AM
40	N025493-001C	SAMP	1	08/29/2017	08:49:22 AM
41	N025493-001C	SAMP	5	08/29/2017	08:53:43 AM
45	N025493-002C	SAMP	1	08/29/2017	08:58:32 AM
64	N025493-002B	SAMP	1	08/29/2017	09:03:23 AM
50	N025493-007C	SAMP	1	08/29/2017	09:07:43 AM
69	N025493-007B	SAMP	1	08/29/2017	09:12:04 AM
99	LCS-63441	LCS	1	08/29/2017	09:16:24 AM
100	N025503-001C	SAMP	1	08/29/2017	09:21:14 AM
101	N025503-001C	SAMP	5	08/29/2017	09:25:36 AM
7	CCV10	CCV	1	08/29/2017	09:30:27 AM
7	CCV10	CCV	1	08/29/2017	09:40:30 AM
1	CCB10	CCB	1	08/29/2017	09:45:49 AM
102	N025503-001C-PS	PS	1	08/29/2017	09:50:28 AM
103	N025503-001C-MS	MS	1	08/29/2017	09:54:50 AM
104	N025503-001C-MSD	MSD	1	08/29/2017	09:59:12 AM
7	CCV11	CCV	1	08/29/2017	10:03:34 AM
1	CCB11	CCB	1	08/29/2017	10:07:54 AM
2	LLCCV3	CCV2	1	08/29/2017	10:12:12 AM
4	ICSA4	ICSA	1	08/29/2017	10:16:31 AM
5	ICSAB4	ICSAB	1	08/29/2017	10:22:27 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**
Prep Batch **63441** Prep Code: **3010_W**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63441	Aqueous		25	☐	0	0	25	1.000		
MB-63441	Aqueous		25	☐	0	0	25	1.000		
N025503-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-003C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-004C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-005C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-006C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-007C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-008C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-009C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-010C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-011C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 2:00:00 P**
Prep End Date: **8/19/2017 6:00:00 P**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017

Prep Batch **63441** Prep Code: **3010_W** Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025503-012C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-013C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-014C	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-015C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9139	HYDROCHLORIC ACID
9144	NITIRC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170828C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	08/28/2017	07:40:35 PM	Fe	273.953	9	0.00	mg/L	
Standard1	08/28/2017	07:44:53 PM	Fe	273.953	342	0.0200	mg/L	
Standard2	08/28/2017	07:49:10 PM	Fe	273.953	898	0.050	mg/L	
Standard3	08/28/2017	07:53:59 PM	Fe	273.953	28576	2.000	mg/L	
Standard4	08/28/2017	07:58:49 PM	Fe	273.953	72598	5.000	mg/L	
Standard5	08/28/2017	08:03:40 PM	Fe	273.953	109250	7.500	mg/L	
Standard6	08/28/2017	08:08:28 PM	Fe	273.953	144978	10.000	mg/L	
Standard7	08/28/2017	08:12:47 PM	Fe	273.953	283932	20.000	mg/L	0.9999

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9899.956	20	10000	0	99.0	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ZZZZZZ**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	23.660	20	20.00	0	118	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10138.018	20	10000	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10901.811	20	10000	0	109	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10128.764	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10154.691	20	10000	0	102	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ZZZZZZ**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.204	20	20.00	0	126	70	130				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10131.519	20	10000	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10122.257	20	10000	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10108.606	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10591.941	20	10000	0	106	90	110				

Sample ID **LLCCV2**	SampType: **CCV2**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ZZZZZZ**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.087	20	20.00	0	125	70	130				

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10474.141	20	10000	0	105	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10092.325	20	10000	0	101	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCV**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10055.905	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **LLCCV3**	SampType: **CCV2**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ZZZZZZ**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	25.675	20	20.00	0	128	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.984	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.013	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749494**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.856	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.104	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.004	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	CCB5	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.699	20									

Sample ID	CCB6	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749545

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	5.774	20									

Sample ID	CCB7	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.186	20									

Sample ID	CCB8	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749568

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.813	20									

Sample ID	CCB9	SampType:	CCB	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:		RunNo:	117505
Client ID:	CCB	Batch ID:	R117505	TestNo:	EPA 6010B			Analysis Date:	8/29/2017	SeqNo:	2749583

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.624	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.193	20									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **CCB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.131	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSA**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465766.671	50	500000	0	93.2	80	120				
Calcium	494633.092	500	500000	0	98.9	80	120				
Iron	184498.387	20	200000	0	92.2	80	120				
Magnesium	526449.321	100	500000	0	105	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSAB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/28/2017**	SeqNo: **2749470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533097.646	50	500000	0	107	80	120				
Calcium	575379.393	500	500000	0	115	80	120				
Iron	202270.742	20	200000	0	101	80	120				
Magnesium	543253.109	100	500000	0	109	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSA**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	466818.378	50	500000	0	93.4	80	120				
Calcium	499958.936	500	500000	0	100	80	120				
Iron	185172.108	20	200000	0	92.6	80	120				
Magnesium	535246.797	100	500000	0	107	80	120				

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSAB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533860.429	50	500000	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSAB** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	573744.357	500	500000	0	115	80	120				
Iron	202758.631	20	200000	0	101	80	120				
Magnesium	549586.986	100	500000	0	110	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSA** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	465186.783	50	500000	0	93.0	80	120				
Calcium	495491.808	500	500000	0	99.1	80	120				
Iron	184433.430	20	200000	0	92.2	80	120				
Magnesium	531400.271	100	500000	0	106	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSAB** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532075.492	50	500000	0	106	80	120				
Calcium	572003.679	500	500000	0	114	80	120				
Iron	201902.135	20	200000	0	101	80	120				
Magnesium	547348.927	100	500000	0	109	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **117505**
Client ID: **ICSA** Batch ID: **R117505** TestNo: **EPA 6010B** Analysis Date: **8/29/2017** SeqNo: **2749603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	462000.971	50	500000	0	92.4	80	120				
Calcium	489292.029	500	500000	0	97.9	80	120				
Iron	181735.644	20	200000	0	90.9	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSA**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	500001.294	100	500000	0	100	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID: **ICSAB**	Batch ID: **R117505**	TestNo: **EPA 6010B**		Analysis Date: **8/29/2017**	SeqNo: **2749604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	528646.042	50	500000	0	106	80	120				
Calcium	565699.973	500	500000	0	113	80	120				
Iron	199003.524	20	200000	0	99.5	80	120				
Magnesium	515829.827	100	500000	0	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0039	100.39	65-125	PASS
Standard2	ICAL	1	1.018	101.79	65-125	PASS
Standard3	ICAL	1	1	99.9	65-125	PASS
Standard4	ICAL	1	0.99	99.32	65-125	PASS
Standard5	ICAL	1	0.98	98.068	65-125	PASS
Standard6	ICAL	1	0.98	97.95	65-125	PASS
Standard7	ICAL	1	0.96	95.97	65-125	PASS
ICV	ICV	1	0.97	97.14	65-125	PASS
ICB	ICB	1	1	99.82	65-125	PASS
LLICV	CCV1	1	1	99.95	65-125	PASS
LLICV	CCV1	1	1	99.86	65-125	PASS
ICSA1	ICSA	1	1.13	113.38	65-125	PASS
ICSAB1	ICSAB	1	1.046	104.56	65-125	PASS
CCV1	CCV	1	0.97	97.11	65-125	PASS
CCB1	CCB	1	1.0005	100.05	65-125	PASS
CCV2	CCV	1	0.96	96.39	65-125	PASS
CCB2	CCB	1	1.0076	100.76	65-125	PASS
CCV3	CCV	1	0.99	98.53	65-125	PASS
CCB3	CCB	1	0.98	98.5	65-125	PASS
MB-63441	MBLK	1	1.0093	100.93	65-125	PASS
CCV4	CCV	1	0.99	98.53	65-125	PASS
CCB4	CCB	1	1.01	101.02	65-125	PASS
LLCCV1	CCV2	1	1.013	101.27	65-125	PASS
ICSA2	ICSA	1	1.15	115.21	65-125	PASS
ICSAB2	ICSAB	1	1.068	106.84	65-125	PASS
LCS-63441	LCS	1	0.93	93.12	65-125	PASS
N025503-001C	SAMP	1	1.048	104.83	65-125	PASS
N025503-001C	SAMP	5	1	99.92	65-125	PASS
N025503-001C-PS	PS	1	1.047	104.67	65-125	PASS
N025503-001C-MS	MS	1	1.031	103.11	65-125	PASS
N025503-001C-MSD	MSD	1	1.043	104.29	65-125	PASS
N025503-003C	SAMP	1	1.029	102.93	65-125	PASS
N025503-004C	SAMP	1	1.05	105	65-125	PASS
N025503-005C	SAMP	1	1.036	103.61	65-125	PASS
N025503-006C	SAMP	1	1.062	106.19	65-125	PASS
CCV5	CCV	1	1.0002	100.02	65-125	PASS
CCB5	CCB	1	1.023	102.33	65-125	PASS
N025503-007C	SAMP	1	1.05	104.98	65-125	PASS
N025503-008C	SAMP	1	1.053	105.31	65-125	PASS
N025503-009C	SAMP	1	1.048	104.85	65-125	PASS

NR

INTERNAL STANDARD: 170828C

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N025503-010C	SAMP	1	1.037	103.68	65-125	PASS
N025503-011C	SAMP	1	1.044	104.39	65-125	PASS
N025503-012C	SAMP	1	1.064	106.44	65-125	PASS
N025503-013C	SAMP	1	1.046	104.62	65-125	PASS
N025503-014C	SAMP	1	1.065	106.54	65-125	PASS
N025503-015C	SAMP	1	1.021	102.07	65-125	PASS
CCV6	CCV	1	0.98	98.27	65-125	PASS
CCB6	CCB	1	1.0046	100.46	65-125	PASS
CCV7	CCV	1	0.98	97.63	65-125	PASS
CCB7	CCB	1	0.98	97.81	65-125	PASS
CCV8	CCV	1	0.97	97.028	65-125	PASS
CCB8	CCB	1	1	99.6	65-125	PASS
LLCCV2	CCV2	1	0.99	99.19	65-125	PASS
ICSA3	ICSA	1	1.13	112.93	65-125	PASS
ICSAB3	ICSAB	1	1.038	103.82	65-125	PASS
CCV9	CCV	1	0.99	98.74	65-125	PASS
CCB9	CCB	1	1.011	101.08	65-125	PASS
LCS-63441	LCS	1	0.94	93.75	65-125	PASS
N025503-001C	SAMP	1	1.025	102.52	65-125	PASS
N025503-001C	SAMP	5	0.99	98.71	65-125	PASS
CCV10	CCV	1	0.46	45.72	65-125	NR!
CCV10	CCV	1	0.99	99.17	65-125	PASS
CCB10	CCB	1	1.015	101.54	65-125	PASS
N025503-001C-PS	PS	1	1.011	101.12	65-125	PASS
N025503-001C-MS	MS	1	1.016	101.62	65-125	PASS
N025503-001C-MSD	MSD	1	1.053	105.31	65-125	PASS
CCV11	CCV	1	1.015	101.46	65-125	PASS
CCB11	CCB	1	1.035	103.48	65-125	PASS
LLCCV3	CCV2	1	1.026	102.58	65-125	PASS
ICSA4	ICSA	1	1.19	119.24	65-125	PASS
ICSAB4	ICSAB	1	1.1	110.43	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025503
Test Method: EPA 6010B
Analysis Date: 8/28/2017

Matrix: Groundwater
Batch No.: 63441

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025503-001C DT 5X	Iron	ug/L	18.84923	NA	21.61784	12.81%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	**N025503-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **117505**
Client ID:	**ZZZZZZ**	Batch ID: **63441**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **8/29/2017**	SeqNo: **2749597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	115.516	20	100.0	21.62	93.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63427
ASSET #: N025503

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 8/28/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X					
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits		X				
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented		X				
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

%Rec of Ba in N025493-001B PS/~~MS/MSD~~ failed. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 8/31/2017 Date: —

2nd Level Reviewer 8/31/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Arsenic concentration, in ug/L , in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N025503-001B** , the concentration in ug/L is calculated as follows:

Arsenic , ug/L = 2.10698 * 1 * (25/25)

Arsenic , ug/L = 2.10698

Reporting results in two significant figures,

Arsenic , ug/L = 2.1

% RSD SUMMARY

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	2.35	15	PASS	0.11	5.49	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.53	2.63	15	PASS	0.51	3.64	15	PASS
Std3-5/50 ppb	ICAL	1	5.17	1.51	15	PASS	5.09	1.72	15	PASS
Std4-10/100 ppb	ICAL	1	10.26	0.58	15	PASS	10.091	0.51	15	PASS
Std5-20/200 ppb	ICAL	1	20.45	0.22	15	PASS	19.97	1	15	PASS
Std6-40/400 ppb	ICAL	1	40.45	0.94	15	PASS	39.95	1.61	15	PASS
Std7-100/1000 ppb	ICAL	1	101.43	0.97	15	PASS	99.05	0.81	15	PASS
Std8-200/2000 ppb	ICAL	1	199.13	0.56	15	PASS	200.48	1.93	15	PASS
ICV	ICV	1	9.43	1.088	15	PASS	9.44	2.14	15	PASS
ICB	ICB	1	0.01	25.32	15	<PQL	0.0029	52.65	15	<PQL
LLICV	CCV1	1	1.13	0.35	20	PASS	1.019	3.022	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.14	8.2	15	PASS
ICSAB1	ICSAB	1	16.62	14.43	15	PASS	19.22	0.32	15	PASS
LLICV	CCV1	1	1.03	3.34	20	PASS	1.023	3.54	20	PASS
CCV1	CCV	1	20.3	0.57	15	PASS	19.92	0.82	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.18	0.54	15	PASS	19.91	1.44	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
MB-63427	MBLK	1	0.033	13.76	15	PASS	<0.000	N/A	15	<PQL
LCS-63427	LCS	1	9.41	0.7	15	PASS	9.4	0.81	15	PASS
N025503-001B	SAMP	1	106.5	0.46	15	PASS	0.018	28.12	15	<PQL
N025503-001B	SAMP	5	22.46	1.35	15	PASS	0.018	26.89	15	<PQL
N025503-001B-PS	PS	1	114.067	1.35	15	PASS	9.0027	1.74	15	PASS
N025503-001B-MS	MS	1	114.11	1.0034	15	PASS	8.9	1.63	15	PASS
N025503-001B-MSD	MSD	1	115.35	0.82	15	PASS	8.88	1.73	15	PASS
N025503-003B	SAMP	1	109.15	0.69	15	PASS	<0.000	N/A	15	<PQL
N025503-004B	SAMP	1	109.75	1.015	15	PASS	0.005	159.97	15	<PQL
CCV3	CCV	1	20.19	0.3	15	PASS	20.056	0.54	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025503-005B	SAMP	1	111.43	1.01	15	PASS	0.019	18.67	15	<PQL
N025503-006B	SAMP	1	108.33	0.72	15	PASS	<0.000	N/A	15	<PQL
N025503-007B	SAMP	1	106.16	0.74	15	PASS	0.0097	38.86	15	<PQL
N025503-008B	SAMP	1	109.58	0.44	15	PASS	0.025	9.43	15	PASS
N025503-009B	SAMP	1	107.6	0.29	15	PASS	<0.000	N/A	15	<PQL
N025503-010B	SAMP	1	108.83	0.32	15	PASS	0.0016	314.57	15	<PQL
N025503-011B	SAMP	1	110.1	0.7	15	PASS	<0.000	N/A	15	<PQL
N025503-012B	SAMP	1	109.36	1.043	15	PASS	0.019	21.87	15	<PQL
N025503-013B	SAMP	1	103.95	0.33	15	PASS	0.0079	61.83	15	<PQL
N025503-014B	SAMP	1	110.97	0.57	15	PASS	0.003	50.3	15	<PQL
CCV4	CCV	1	20.19	0.47	15	PASS	20.22	1.36	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025503-015B	SAMP	1	108.7	1.76	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	19.95	0.49	15	PASS	20.27	1.6	15	PASS
CCB5	CCB	1	0.00051	216.66	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.98	0.9	20	PASS	1.028	2.51	20	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.14	10.5	15	PASS
ICSAB2	ICSAB	1	21.81	0.46	15	PASS	19.22	0.16	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.14	11.33	15	PASS	0.098	6.013	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.52	3.89	15	PASS	0.51	6.66	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	2.33	15	PASS	5.083	1.86	15	PASS
Std4-10/100 ppb	ICAL	1	10.33	1.45	15	PASS	10.23	0.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.45	1.25	15	PASS	20.42	0.96	15	PASS
Std6-40/400 ppb	ICAL	1	40.8	1.44	15	PASS	40.45	0.54	15	PASS
Std7-100/1000 ppb	ICAL	1	101.31	1.033	15	PASS	101.73	0.39	15	PASS
Std8-200/2000 ppb	ICAL	1	199.12	1.034	15	PASS	198.99	1.054	15	PASS
ICV	ICV	1	94.47	1.83	15	PASS	9.5	0.61	15	PASS
ICB	ICB	1	0.015	22.97	15	<PQL	0.0038	181.19	15	<PQL
LLICV	CCV1	1	0.63	3.96	20	PASS	0.12	7.48	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	16.45	0.99	15	PASS	20.33	0.45	15	PASS
LLICV	CCV1	1	0.53	1.55	20	PASS	0.1	14.72	20	PASS
CCV1	CCV	1	20.58	0.77	15	PASS	20.27	1.028	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0086	74.5	15	<PQL
CCV2	CCV	1	20.26	2.38	15	PASS	20.34	0.76	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0055	152.62	15	<PQL
MB-63427	MBLK	1	<0.000	N/A	15	<PQL	0.0024	307.96	15	<PQL
LCS-63427	LCS	1	95.66	0.68	15	PASS	9.57	2.71	15	PASS
N025503-001B	SAMP	1	<0.000	N/A	15	<PQL	2.11	2.54	15	PASS
N025503-001B	SAMP	5	0.15	6.53	15	PASS	0.46	5.27	15	PASS
N025503-001B-PS	PS	1	89.57	1.31	15	PASS	11.31	0.99	15	PASS
N025503-001B-MS	MS	1	88.64	1.55	15	PASS	11.22	1.87	15	PASS
N025503-001B-MSD	MSD	1	88.11	0.82	15	PASS	11.42	1.29	15	PASS
N025503-003B	SAMP	1	<0.000	N/A	15	<PQL	2.17	0.58	15	PASS
N025503-004B	SAMP	1	<0.000	N/A	15	<PQL	2.18	4.48	15	PASS
CCV3	CCV	1	20.33	0.96	15	PASS	20.25	0.83	15	PASS
CCB3	CCB	1	0.00073	207.9	15	<PQL	0.016	50.1	15	<PQL
N025503-005B	SAMP	1	3.7	2.16	15	PASS	2.24	1.37	15	PASS
N025503-006B	SAMP	1	5.49	1.29	15	PASS	2.17	2.33	15	PASS
N025503-007B	SAMP	1	<0.000	N/A	15	<PQL	2.068	3.89	15	PASS
N025503-008B	SAMP	1	<0.000	N/A	15	<PQL	2.11	2.84	15	PASS
N025503-009B	SAMP	1	<0.000	N/A	15	<PQL	2.13	1.083	15	PASS
N025503-010B	SAMP	1	<0.000	N/A	15	<PQL	2.11	2.72	15	PASS
N025503-011B	SAMP	1	<0.000	N/A	15	<PQL	2.075	0.95	15	PASS
N025503-012B	SAMP	1	<0.000	N/A	15	<PQL	2.14	2.34	15	PASS
N025503-013B	SAMP	1	<0.000	N/A	15	<PQL	2.062	4.52	15	PASS
N025503-014B	SAMP	1	<0.000	N/A	15	<PQL	2.21	1.37	15	PASS
CCV4	CCV	1	20.31	1.9	15	PASS	20.33	0.78	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.0068	46.21	15	<PQL
N025503-015B	SAMP	1	<0.000	N/A	15	<PQL	2.11	2.61	15	PASS
CCV5	CCV	1	20.39	1.88	15	PASS	20.27	1.6	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.0099	68.77	15	<PQL
LLCCV1	CCV2	1	0.52	3.21	20	PASS	0.12	6.95	20	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.67	0.75	15	PASS	20.12	0.38	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.055	32.76	15	<PQL	0.096	15.51	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.55	6.67	15	PASS	0.49	4.89	15	PASS
Std3-5/50 ppb	ICAL	1	4.84	4.51	15	PASS	4.94	0.46	15	PASS
Std4-10/100 ppb	ICAL	1	9.58	1.89	15	PASS	9.86	0.13	15	PASS
Std5-20/200 ppb	ICAL	1	20.29	3.93	15	PASS	19.58	1.7	15	PASS
Std6-40/400 ppb	ICAL	1	40.42	0.75	15	PASS	39.59	0.82	15	PASS
Std7-100/1000 ppb	ICAL	1	101.34	1.88	15	PASS	99.14	0.38	15	PASS
Std8-200/2000 ppb	ICAL	1	199.24	0.64	15	PASS	200.56	0.85	15	PASS
ICV	ICV	1	9.21	3.4	15	PASS	9.24	0.93	15	PASS
ICB	ICB	1	0.0019	204.99	15	<PQL	0.062	11.3	15	PASS
LLICV	CCV1	1	0.49	2.37	20	PASS	0.5	2.19	20	PASS
ICSA1	ICSA	1	0.0032	375.85	15	<PQL	0.049	5.051	15	PASS
ICSAB1	ICSAB	1	18.91	2.21	15	PASS	21.084	1.18	15	PASS
LLICV	CCV1	1	0.55	3.52	20	PASS	0.52	3.46	20	PASS
CCV1	CCV	1	20.073	1.017	15	PASS	19.72	0.89	15	PASS
CCB1	CCB	1	0.0054	164.048	15	<PQL	0.083	8.68	15	PASS
CCV2	CCV	1	20.31	0.91	15	PASS	19.68	1.82	15	PASS
CCB2	CCB	1	0.019	168.29	15	<PQL	0.082	1.73	15	PASS
MB-63427	MBLK	1	0.0088	91.4	15	<PQL	0.015	54.46	15	<PQL
LCS-63427	LCS	1	9.53	4.81	15	PASS	9.18	1.91	15	PASS
N025503-001B	SAMP	1	1.49	11.41	15	PASS	4.45	1.87	15	PASS
N025503-001B	SAMP	5	0.32	12.81	15	PASS	0.91	2.04	15	PASS
N025503-001B-PS	PS	1	10.036	0.76	15	PASS	13.97	2.028	15	PASS
N025503-001B-MS	MS	1	10.12	2.06	15	PASS	14.16	1.28	15	PASS
N025503-001B-MSD	MSD	1	10.61	3.28	15	PASS	14.4	1.7	15	PASS
N025503-003B	SAMP	1	1.5	12.46	15	PASS	4.53	0.54	15	PASS
N025503-004B	SAMP	1	1.39	5.13	15	PASS	4.48	2.18	15	PASS
CCV3	CCV	1	20.56	0.53	15	PASS	19.81	0.34	15	PASS
CCB3	CCB	1	0.012	105.22	15	<PQL	0.077	4.42	15	PASS
N025503-005B	SAMP	1	1.47	9.84	15	PASS	4.56	2.87	15	PASS
N025503-006B	SAMP	1	1.54	9.29	15	PASS	4.4	0.72	15	PASS
N025503-007B	SAMP	1	1.5	7.46	15	PASS	4.36	0.27	15	PASS
N025503-008B	SAMP	1	1.53	4.12	15	PASS	4.42	1.25	15	PASS
N025503-009B	SAMP	1	1.45	9.4	15	PASS	4.38	1.15	15	PASS
N025503-010B	SAMP	1	1.53	10.15	15	PASS	4.47	1.31	15	PASS
N025503-011B	SAMP	1	1.48	8.95	15	PASS	4.54	0.77	15	PASS
N025503-012B	SAMP	1	1.46	0.38	15	PASS	4.48	1.42	15	PASS
N025503-013B	SAMP	1	1.45	3.6	15	PASS	4.3	0.39	15	PASS
N025503-014B	SAMP	1	1.51	2.55	15	PASS	4.54	1.99	15	PASS
CCV4	CCV	1	20.78	1.79	15	PASS	19.47	0.69	15	PASS

PERCENT RSD SUMMARY: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB4	CCB	1	0.015	85.071	15	<PQL	0.08	16.44	15	<PQL
N025503-015B	SAMP	1	1.66	2.75	15	PASS	4.48	1.27	15	PASS
CCV5	CCV	1	20.35	2.59	15	PASS	19.55	0.3	15	PASS
CCB5	CCB	1	0.01	228.87	15	<PQL	0.084	7.33	15	PASS
LLCCV1	CCV2	1	0.51	5.78	20	PASS	0.51	7.71	20	PASS
ICSA2	ICSA	1	0.0056	198.69	15	<PQL	0.037	11.97	15	PASS
ICSAB2	ICSAB	1	18.83	2.081	15	PASS	20.89	0.94	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170828A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0828001.D	RINSE	RINSE	1	08/28/17 9:06 AM
A0828002.D	Cal Blank	IBLK	1	08/28/17 9:12 AM
A0828003.D	Std1-0.1/1 ppb	ICAL	1	08/28/17 9:17 AM
A0828004.D	Std2-0.5/5 ppb	ICAL	1	08/28/17 9:23 AM
A0828005.D	Std3-5/50 ppb	ICAL	1	08/28/17 9:28 AM
A0828006.D	Std4-10/100 ppb	ICAL	1	08/28/17 9:34 AM
A0828007.D	Std5-20/200 ppb	ICAL	1	08/28/17 9:39 AM
A0828008.D	Std6-40/400 ppb	ICAL	1	08/28/17 9:45 AM
A0828009.D	Std7-100/1000 ppb	ICAL	1	08/28/17 9:50 AM
A0828010.D	Std8-200/2000 ppb	ICAL	1	08/28/17 9:56 AM
A0828011.D	ICV	ICV	1	08/28/17 10:01 AM
A0828012.D	ICB	ICB	1	08/28/17 10:07 AM
A0828013.D	LLICV	CCV1	1	08/28/17 10:12 AM
A0828014.D	ICSA1	ICSA	1	08/28/17 10:18 AM
A0828015.D	ICSAB1	ICSAB	1	08/28/17 10:23 AM
A0828016.D	LLICV	CCV1	1	08/28/17 10:36 AM
A0828017.D	MB-63426	MBLK	1	08/28/17 10:41 AM
A0828018.D	LCS-63426	LCS	1	08/28/17 10:46 AM
A0828019.D	N025493-001B	SAMP	1	08/28/17 10:52 AM
A0828020.D	N025493-001B	SAMP	5	08/28/17 10:58 AM
A0828021.D	N025493-001B-PS	PS	1	08/28/17 11:02 AM
A0828022.D	N025493-001B-MS	MS	1	08/28/17 11:08 AM
A0828023.D	N025493-001B-MSD	MSD	1	08/28/17 11:14 AM
A0828024.D	N025493-002B	SAMP	1	08/28/17 11:20 AM
A0828025.D	N025493-003B	SAMP	1	08/28/17 11:26 AM
A0828026.D	N025493-004B	SAMP	1	08/28/17 11:31 AM
A0828027.D	CCV1	CCV	1	08/28/17 11:37 AM
A0828028.D	CCB1	CCB	1	08/28/17 11:42 AM
A0828029.D	N025493-005B	SAMP	1	08/28/17 11:48 AM
A0828030.D	N025493-006B	SAMP	1	08/28/17 11:53 AM
A0828031.D	N025493-007B	SAMP	1	08/28/17 11:59 AM
A0828032.D	N025493-008B	SAMP	1	08/28/17 12:04 PM
A0828033.D	N025493-009B	SAMP	1	08/28/17 12:10 PM
A0828034.D	N025493-010B	SAMP	1	08/28/17 12:15 PM
A0828035.D	N025493-011B	SAMP	1	08/28/17 12:21 PM
A0828036.D	N025493-012B	SAMP	1	08/28/17 12:26 PM
A0828037.D	N025493-013B	SAMP	1	08/28/17 12:32 PM
A0828038.D	N025493-014B	SAMP	1	08/28/17 12:37 PM
A0828039.D	CCV2	CCV	1	08/28/17 12:43 PM
A0828040.D	CCB2	CCB	1	08/28/17 12:49 PM
A0828041.D	N025493-017B	SAMP	1	08/28/17 1:03 PM
A0828042.D	MB-63427	MBLK	1	08/28/17 1:08 PM

INJECTION LOG: 170828A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0828043.D	LCS-63427	LCS	1	08/28/17 1:14 PM
A0828044.D	N025503-001B	SAMP	1	08/28/17 1:19 PM
A0828045.D	N025503-001B	SAMP	5	08/28/17 1:25 PM
A0828046.D	N025503-001B-PS	PS	1	08/28/17 1:30 PM
A0828047.D	N025503-001B-MS	MS	1	08/28/17 1:36 PM
A0828048.D	N025503-001B-MSD	MSD	1	08/28/17 1:41 PM
A0828049.D	N025503-003B	SAMP	1	08/28/17 1:47 PM
A0828050.D	N025503-004B	SAMP	1	08/28/17 1:52 PM
A0828051.D	CCV3	CCV	1	08/28/17 1:58 PM
A0828052.D	CCB3	CCB	1	08/28/17 2:04 PM
A0828053.D	N025503-005B	SAMP	1	08/28/17 2:09 PM
A0828054.D	N025503-006B	SAMP	1	08/28/17 2:15 PM
A0828055.D	N025503-007B	SAMP	1	08/28/17 2:20 PM
A0828056.D	N025503-008B	SAMP	1	08/28/17 2:26 PM
A0828057.D	N025503-009B	SAMP	1	08/28/17 2:31 PM
A0828058.D	N025503-010B	SAMP	1	08/28/17 2:37 PM
A0828059.D	N025503-011B	SAMP	1	08/28/17 2:42 PM
A0828060.D	N025503-012B	SAMP	1	08/28/17 2:48 PM
A0828061.D	N025503-013B	SAMP	1	08/28/17 2:53 PM
A0828062.D	N025503-014B	SAMP	1	08/28/17 2:59 PM
A0828063.D	CCV4	CCV	1	08/28/17 3:04 PM
A0828064.D	CCB4	CCB	1	08/28/17 3:10 PM
A0828065.D	N025503-015B	SAMP	1	08/28/17 3:15 PM
A0828066.D	CCV5	CCV	1	08/28/17 3:21 PM
A0828067.D	CCB5	CCB	1	08/28/17 3:26 PM
A0828068.D	LLCCV1	CCV2	1	08/28/17 3:32 PM
A0828069.D	ICSA2	ICSA	1	08/28/17 3:38 PM
A0828070.D	ICSAB2	ICSAB	1	08/28/17 3:52 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 5:50:42 A**
Prep End Date: **8/19/2017 10:00:00**
Prep Batch **63427** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-25**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63427	Aqueous		25	☐	0	0	25	1.000		
MB-63427	Aqueous		25	☐	0	0	25	1.000		
N025503-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-011B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **8/19/2017 5:50:42 A**
Prep End Date: **8/19/2017 10:00:00**
Prep Batch **63427** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 8/31/2017
Initials/ Date: 8/31/2017
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-25**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N025503-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N025503-015B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 28 Aug 2017 08:26:25 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	129997.00	0.00	
24 Mg	599157.00	0.00	
25 Mg	80027.50	0.00	
26 Mg	94139.40	0.00	
59 Co	841130.00	0.00	
115 In	1387670.00	0.00	
206 Pb	367817.00	0.00	
207 Pb	320836.00	0.00	
208 Pb	787240.00	0.00	

RSD (%)

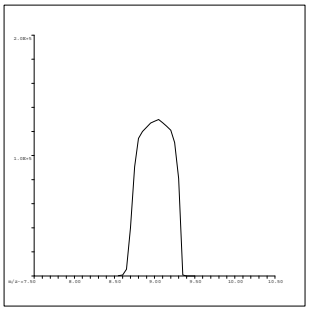
Element	Actual	Required	Flag
9 Be	0.78	5.00	
24 Mg	0.29	5.00	
25 Mg	0.64	5.00	
26 Mg	0.32	5.00	
59 Co	0.51	5.00	
115 In	0.69	5.00	
206 Pb	0.60	5.00	
207 Pb	0.54	5.00	
208 Pb	0.82	5.00	

Ion Ratio

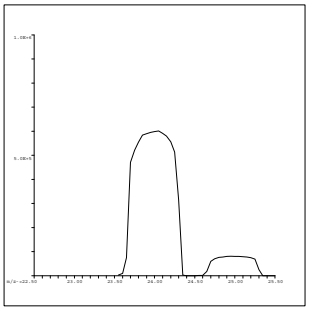
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

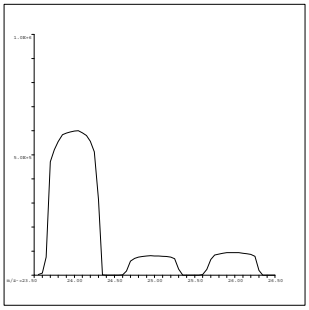
Element	Actual	Required	Flag



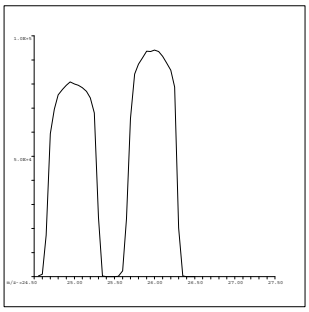
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



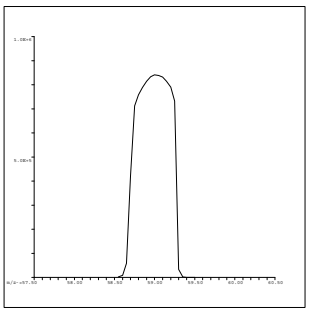
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



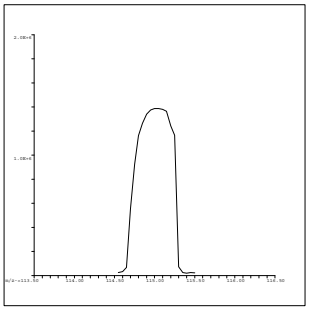
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



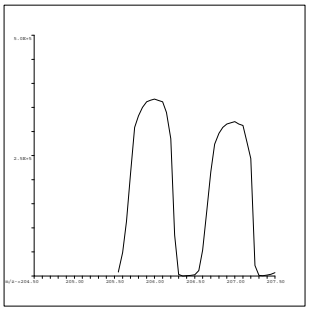
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



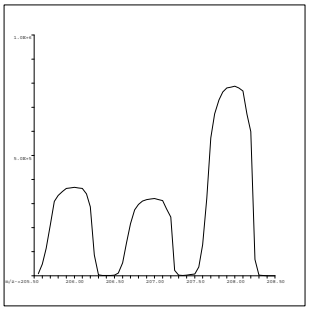
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



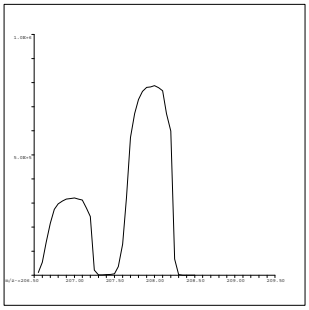
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170828A

Instrument ID: ICPMS-02

Analyte	Data File	A0828002.D	A0828003.D	A0828004.D	A0828005.D	A0828006.D	A0828007.D	A0828008.D	A0828009.D	A0828010.D	
	Acq. Date-Time	08/28/2017 09:12 AM	08/28/2017 09:17 AM	08/28/2017 09:23 AM	08/28/2017 09:28 AM	08/28/2017 09:34 AM	08/28/2017 09:39 AM	08/28/2017 09:45 AM	08/28/2017 09:50 AM	08/28/2017 09:56 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	123489.9		125683.1	125304.3	126708.7	128205.7	127458.8	124943.6	125236.6	
55 Mn [2]	CPS	178.7		2960.7	27712.1	55509.2	111035.8	220024.7	535391.5	1054523.5	1.0000
52 Cr [2]	CPS	606.7		6029	54098.1	107870.5	215392	427599.4	1038569	2106026.7	1.0000
72 Ge (ISTD) [1]	CPS	136499.6		137815.3	138085.8	138795.3	138857.4	137077	135601.4	135854.7	
78 Se [1]	CPS	3.3		253.3	2224.7	4421.9	9365.2	18424.2	45689.3	89989.3	1.0000
72 Ge (ISTD) [2]	CPS	100012.2	101731.6	100062.4	99828.5	100352.9	100437	99808.7	96961.9	98345.7	
75 As [2]	CPS	26.7	154.7	683.1	6520.9	13161.4	26274.1	51693.2	126273.2	250437.5	0.9999
103 Rh (ISTD) [2]	CPS	2845775.8		2799851.3	2813504.1	2822871.5	2870319	2820131.7	2749543.6	2742588.5	
95 Mo [2]	CPS	113.3		3448.3	34075.8	68099.3	137386.9	272803	665766.1	1343416.3	1.0000
159 Tb (ISTD) [3]	CPS	8301212.7		8075975.1	7982293.5	8027318.7	8082963.8	8004436.8	7860557.9	7903948.9	
137 Ba [3]	CPS	197		7798.9	73728.7	147066.5	295023.4	577547.4	1422145	2807227.3	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.504	0.10	10.00	0	95.0	90	110				
Barium	9.431	1.0	10.00	0	94.3	90	110				
Manganese	94.471	0.50	100.0	0	94.5	90	110				
Molybdenum	9.240	0.50	10.00	0	92.4	90	110				
Selenium	9.214	0.50	10.00	0	92.1	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.105	0.10	0.1000	0	105	80	120				
Barium	1.030	1.0	1.000	0	103	80	120				
Manganese	0.528	0.50	0.5000	0	106	80	120				
Molybdenum	0.517	0.50	0.5000	0	103	80	120				
Selenium	0.552	0.50	0.5000	0	110	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749038**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.266	0.10	20.00	0	101	90	110				
Barium	20.298	1.0	20.00	0	101	90	110				
Manganese	20.577	0.50	20.00	0	103	90	110				
Molybdenum	19.716	0.50	20.00	0	98.6	90	110				
Selenium	20.073	0.50	20.00	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **117521**
Client ID: **CCV** Batch ID: **R117521** TestNo: **EPA 6020** Analysis Date: **8/28/2017** SeqNo: **2749050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.339	0.10	20.00	0	102	90	110				
Barium	20.177	1.0	20.00	0	101	90	110				
Manganese	20.258	0.50	20.00	0	101	90	110				
Molybdenum	19.676	0.50	20.00	0	98.4	90	110				
Selenium	20.314	0.50	20.00	0	102	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **117521**
Client ID: **CCV** Batch ID: **R117521** TestNo: **EPA 6020** Analysis Date: **8/28/2017** SeqNo: **2749062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.253	0.10	20.00	0	101	90	110				
Barium	20.191	1.0	20.00	0	101	90	110				
Manganese	20.332	0.50	20.00	0	102	90	110				
Molybdenum	19.808	0.50	20.00	0	99.0	90	110				
Selenium	20.561	0.50	20.00	0	103	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **117521**
Client ID: **CCV** Batch ID: **R117521** TestNo: **EPA 6020** Analysis Date: **8/28/2017** SeqNo: **2749074**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.326	0.10	20.00	0	102	90	110				
Barium	20.194	1.0	20.00	0	101	90	110				
Manganese	20.309	0.50	20.00	0	102	90	110				
Molybdenum	19.473	0.50	20.00	0	97.4	90	110				
Selenium	20.776	0.50	20.00	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCV**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.269	0.10	20.00	0	101	90	110				
Barium	19.951	1.0	20.00	0	99.8	90	110				
Manganese	20.392	0.50	20.00	0	102	90	110				
Molybdenum	19.554	0.50	20.00	0	97.8	90	110				
Selenium	20.354	0.50	20.00	0	102	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ZZZZZZ**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.124	0.10	0.1000	0	124	70	130				
Barium	0.983	1.0	1.000	0	98.3	70	130				
Manganese	0.519	0.50	0.5000	0	104	70	130				
Molybdenum	0.512	0.50	0.5000	0	102	70	130				
Selenium	0.510	0.50	0.5000	0	102	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.439	1.0	10.00	0	94.4	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ZZZZZZ**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.023	1.0	1.000	0	102	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.923	1.0	20.00	0	99.6	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.911	1.0	20.00	0	99.6	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.056	1.0	20.00	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.217	1.0	20.00	0	101	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCV**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.275	1.0	20.00	0	101	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ZZZZZZ**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.028	1.0	1.000	0	103	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.062	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.083	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.082	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749063**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.077	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.080	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **CCB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.084	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**6020DIS_CrP**	**µg/L**		**117520**
Client ID: **ICB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB1	**CCB**	**6020DIS_CrP**	**µg/L**		**117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB2	**CCB**	**6020DIS_CrP**	**µg/L**		**117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB3	**CCB**	**6020DIS_CrP**	**µg/L**		**117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB4	**CCB**	**6020DIS_CrP**	**µg/L**		**117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **CCB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748998**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICSA**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.049	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICSAB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.333	0.10	20.00	0	102	80	120				
Barium	16.623	1.0	20.00	0	83.1	80	120				
Manganese	16.450	0.50	20.00	0	82.2	80	120				
Molybdenum	21.084	0.50	20.00	0	105	80	120				
Selenium	18.911	0.50	20.00	0	94.6	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICSA**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **117521**
Client ID: **ICSAB**	Batch ID: **R117521**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.116	0.10	20.00	0	101	80	120				
Barium	21.812	1.0	20.00	0	109	80	120				
Manganese	19.667	0.50	20.00	0	98.3	80	120				
Molybdenum	20.890	0.50	20.00	0	104	80	120				
Selenium	18.825	0.50	20.00	0	94.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSA**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.139	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSAB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2748946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.218	1.0	20.00	0	96.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSA**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.145	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **117520**
Client ID: **ICSAB**	Batch ID: **R117520**	TestNo: **EPA 6020**		Analysis Date: **8/28/2017**	SeqNo: **2749001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.221	1.0	20.00	0	96.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	8301212.7	8301212.7	100	PASS	70-125	123489.9	123489.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	8289496.5	8301212.7	99.86	PASS	70-125	127823.2	123489.9	103.51	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	8075975.1	8301212.7	97.29	PASS	70-125	125683.1	123489.9	101.78	PASS	70-125
Std3-5/50 ppb	ICAL	1	7982293.5	8301212.7	96.16	PASS	70-125	125304.3	123489.9	101.47	PASS	70-125
Std4-10/100 ppb	ICAL	1	8027318.7	8301212.7	96.7	PASS	70-125	126708.7	123489.9	102.61	PASS	70-125
Std5-20/200 ppb	ICAL	1	8082963.8	8301212.7	97.37	PASS	70-125	128205.7	123489.9	103.82	PASS	70-125
Std6-40/400 ppb	ICAL	1	8004436.8	8301212.7	96.42	PASS	70-125	127458.8	123489.9	103.21	PASS	70-125
Std7-100/1000 ppb	ICAL	1	7860557.9	8301212.7	94.69	PASS	70-125	124943.6	123489.9	101.18	PASS	70-125
Std8-200/2000 ppb	ICAL	1	7903948.9	8301212.7	95.21	PASS	70-125	125236.6	123489.9	101.41	PASS	70-125
ICV	ICV	1	8717807.9	8301212.7	105.02	PASS	70-125	131511	123489.9	106.5	PASS	70-125
ICB	ICB	1	8549670.4	8301212.7	102.99	PASS	70-125	136407.2	123489.9	110.46	PASS	70-125
LLICV	CCV1	1	7726266.9	8301212.7	93.074	PASS	70-125	123941.2	123489.9	100.37	PASS	70-125
ICSA1	ICSA	1	7098170.8	8301212.7	85.51	PASS	70-125	123992	123489.9	100.41	PASS	70-125
ICSAB1	ICSAB	1	7138640	8301212.7	86	PASS	70-125	134567.9	123489.9	108.97	PASS	70-125
LLICV	CCV1	1	7770168.8	8301212.7	93.6	PASS	70-125	127818	123489.9	103.5	PASS	70-125
CCV1	CCV	1	7800711.6	8301212.7	93.97	PASS	70-125	132591.2	123489.9	107.37	PASS	70-125
CCB1	CCB	1	7586847.8	8301212.7	91.39	PASS	70-125	123543	123489.9	100.04	PASS	70-125
CCV2	CCV	1	7735883.6	8301212.7	93.19	PASS	70-125	130921.3	123489.9	106.02	PASS	70-125
CCB2	CCB	1	7543931.8	8301212.7	90.88	PASS	70-125	122642.8	123489.9	99.31	PASS	70-125
MB-63427	MBLK	1	7080126.6	8301212.7	85.29	PASS	70-125	116738.9	123489.9	94.53	PASS	70-125
LCS-63427	LCS	1	8208804.9	8301212.7	98.89	PASS	70-125	128868	123489.9	104.36	PASS	70-125
N025503-001B	SAMP	1	7346536.8	8301212.7	88.5	PASS	70-125	118043.4	123489.9	95.59	PASS	70-125
N025503-001B	SAMP	5	7145287.4	8301212.7	86.075	PASS	70-125	115362.6	123489.9	93.42	PASS	70-125
N025503-001B-PS	PS	1	7413917.7	8301212.7	89.31	PASS	70-125	103560.7	123489.9	83.86	PASS	70-125
N025503-001B-MS	MS	1	7421435.4	8301212.7	89.4	PASS	70-125	116205.4	123489.9	94.1	PASS	70-125
N025503-001B-MSD	MSD	1	7585717.2	8301212.7	91.38	PASS	70-125	126380.3	123489.9	102.34	PASS	70-125
N025503-003B	SAMP	1	7421034.7	8301212.7	89.4	PASS	70-125	123174.5	123489.9	99.74	PASS	70-125
N025503-004B	SAMP	1	7417760	8301212.7	89.36	PASS	70-125	122479.6	123489.9	99.18	PASS	70-125
CCV3	CCV	1	7593273.5	8301212.7	91.47	PASS	70-125	125869.2	123489.9	101.93	PASS	70-125
CCB3	CCB	1	7435603	8301212.7	89.57	PASS	70-125	119314.8	123489.9	96.62	PASS	70-125
N025503-005B	SAMP	1	7305771.6	8301212.7	88.009	PASS	70-125	116771.5	123489.9	94.56	PASS	70-125
N025503-006B	SAMP	1	7513437.4	8301212.7	90.51	PASS	70-125	122514.6	123489.9	99.21	PASS	70-125
N025503-007B	SAMP	1	7416021.1	8301212.7	89.34	PASS	70-125	120504.2	123489.9	97.58	PASS	70-125
N025503-008B	SAMP	1	7405883.2	8301212.7	89.21	PASS	70-125	120695.4	123489.9	97.74	PASS	70-125
N025503-009B	SAMP	1	7529209.3	8301212.7	90.7	PASS	70-125	121518.8	123489.9	98.4	PASS	70-125
N025503-010B	SAMP	1	7460865.7	8301212.7	89.88	PASS	70-125	120855.8	123489.9	97.87	PASS	70-125
N025503-011B	SAMP	1	7500117.5	8301212.7	90.35	PASS	70-125	121914.1	123489.9	98.72	PASS	70-125
N025503-012B	SAMP	1	7345458	8301212.7	88.49	PASS	70-125	120779.6	123489.9	97.81	PASS	70-125
N025503-013B	SAMP	1	7428492.8	8301212.7	89.49	PASS	70-125	120444	123489.9	97.53	PASS	70-125
N025503-014B	SAMP	1	7328646.7	8301212.7	88.28	PASS	70-125	119902.2	123489.9	97.095	PASS	70-125
CCV4	CCV	1	7494527.2	8301212.7	90.28	PASS	70-125	124525.9	123489.9	100.84	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB4	CCB	1	7419016.2	8301212.7	89.37	PASS	70-125	118773.1	123489.9	96.18	PASS	70-125
N025503-015B	SAMP	1	7355388.9	8301212.7	88.61	PASS	70-125	117328.9	123489.9	95.011	PASS	70-125
CCV5	CCV	1	7428044.8	8301212.7	89.48	PASS	70-125	118868.6	123489.9	96.26	PASS	70-125
CCB5	CCB	1	7265213.2	8301212.7	87.52	PASS	70-125	112332.5	123489.9	90.96	PASS	70-125
LLCCV1	CCV2	1	6865467.6	8301212.7	82.7	PASS	70-125	104216.5	123489.9	84.39	PASS	70-125
ICSA2	ICSA	1	6533692.1	8301212.7	78.71	PASS	70-125	110493.1	123489.9	89.48	PASS	70-125
ICSAB2	ICSAB	1	6705633.7	8301212.7	80.78	PASS	70-125	112713	123489.9	91.27	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	100012.2	100012.2	100	PASS	70-125	136499.6	136499.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	101731.6	100012.2	101.72	PASS	70-125	139228	136499.6	102	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	100062.4	100012.2	100.05	PASS	70-125	137815.3	136499.6	100.96	PASS	70-125
Std3-5/50 ppb	ICAL	1	99828.5	100012.2	99.82	PASS	70-125	138085.8	136499.6	101.16	PASS	70-125
Std4-10/100 ppb	ICAL	1	100352.9	100012.2	100.34	PASS	70-125	138795.3	136499.6	101.68	PASS	70-125
Std5-20/200 ppb	ICAL	1	100437	100012.2	100.42	PASS	70-125	138857.4	136499.6	101.73	PASS	70-125
Std6-40/400 ppb	ICAL	1	99808.7	100012.2	99.8	PASS	70-125	137077	136499.6	100.42	PASS	70-125
Std7-100/1000 ppb	ICAL	1	96961.9	100012.2	96.95	PASS	70-125	135601.4	136499.6	99.34	PASS	70-125
Std8-200/2000 ppb	ICAL	1	98345.7	100012.2	98.33	PASS	70-125	135854.7	136499.6	99.53	PASS	70-125
ICV	ICV	1	102683.2	100012.2	102.67	PASS	70-125	128820.9	136499.6	94.37	PASS	70-125
ICB	ICB	1	107637.7	100012.2	107.62	PASS	70-125	144542.7	136499.6	105.89	PASS	70-125
LLICV	CCV1	1	100167.1	100012.2	100.15	PASS	70-125	137602.8	136499.6	100.81	PASS	70-125
ICSA1	ICSA	1	93586.7	100012.2	93.58	PASS	70-125	126911.8	136499.6	92.98	PASS	70-125
ICSAB1	ICSAB	1	99978.6	100012.2	99.97	PASS	70-125	134407.1	136499.6	98.47	PASS	70-125
LLICV	CCV1	1	100182.2	100012.2	100.17	PASS	70-125	127218.6	136499.6	93.2	PASS	70-125
CCV1	CCV	1	103193.7	100012.2	103.18	PASS	70-125	139545.6	136499.6	102.23	PASS	70-125
CCB1	CCB	1	97952.4	100012.2	97.94	PASS	70-125	131951.7	136499.6	96.67	PASS	70-125
CCV2	CCV	1	101532.1	100012.2	101.52	PASS	70-125	132439.3	136499.6	97.025	PASS	70-125
CCB2	CCB	1	97539.6	100012.2	97.53	PASS	70-125	127682.4	136499.6	93.54	PASS	70-125
MB-63427	MBLK	1	92633.7	100012.2	92.62	PASS	70-125	124509.7	136499.6	91.22	PASS	70-125
LCS-63427	LCS	1	102523.1	100012.2	102.51	PASS	70-125	133521.6	136499.6	97.82	PASS	70-125
N025503-001B	SAMP	1	93597	100012.2	93.59	PASS	70-125	121771	136499.6	89.21	PASS	70-125
N025503-001B	SAMP	5	92000.2	100012.2	91.99	PASS	70-125	120558.9	136499.6	88.32	PASS	70-125
N025503-001B-PS	PS	1	81190.8	100012.2	81.18	PASS	70-125	100709.6	136499.6	73.78	PASS	70-125
N025503-001B-MS	MS	1	91081.7	100012.2	91.071	PASS	70-125	117291.2	136499.6	85.93	PASS	70-125
N025503-001B-MSD	MSD	1	98447	100012.2	98.43	PASS	70-125	125893	136499.6	92.23	PASS	70-125
N025503-003B	SAMP	1	96139.1	100012.2	96.13	PASS	70-125	126558.1	136499.6	92.72	PASS	70-125
N025503-004B	SAMP	1	95541.4	100012.2	95.53	PASS	70-125	124639.3	136499.6	91.31	PASS	70-125
CCV3	CCV	1	98329.9	100012.2	98.32	PASS	70-125	127486.3	136499.6	93.4	PASS	70-125
CCB3	CCB	1	94702.2	100012.2	94.69	PASS	70-125	121681.5	136499.6	89.14	PASS	70-125
N025503-005B	SAMP	1	92158.7	100012.2	92.15	PASS	70-125	118815.9	136499.6	87.045	PASS	70-125
N025503-006B	SAMP	1	94716.5	100012.2	94.7	PASS	70-125	123213.9	136499.6	90.27	PASS	70-125
N025503-007B	SAMP	1	94485.7	100012.2	94.47	PASS	70-125	121916.5	136499.6	89.32	PASS	70-125
N025503-008B	SAMP	1	94573.6	100012.2	94.56	PASS	70-125	120428.9	136499.6	88.23	PASS	70-125
N025503-009B	SAMP	1	95394	100012.2	95.38	PASS	70-125	122029.7	136499.6	89.4	PASS	70-125
N025503-010B	SAMP	1	95284.4	100012.2	95.27	PASS	70-125	120458.2	136499.6	88.25	PASS	70-125
N025503-011B	SAMP	1	96348.7	100012.2	96.34	PASS	70-125	121244.8	136499.6	88.82	PASS	70-125
N025503-012B	SAMP	1	94783.8	100012.2	94.77	PASS	70-125	118817.7	136499.6	87.046	PASS	70-125
N025503-013B	SAMP	1	94263.7	100012.2	94.25	PASS	70-125	119073.5	136499.6	87.23	PASS	70-125
N025503-014B	SAMP	1	94382.5	100012.2	94.37	PASS	70-125	119079.3	136499.6	87.24	PASS	70-125
CCV4	CCV	1	97948.6	100012.2	97.94	PASS	70-125	122540.7	136499.6	89.77	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB4	CCB	1	94214.4	100012.2	94.2	PASS	70-125	120407	136499.6	88.21	PASS	70-125
N025503-015B	SAMP	1	93043.9	100012.2	93.033	PASS	70-125	116943.7	136499.6	85.67	PASS	70-125
CCV5	CCV	1	93926	100012.2	93.91	PASS	70-125	120040.6	136499.6	87.94	PASS	70-125
CCB5	CCB	1	90621.9	100012.2	90.61	PASS	70-125	115566.8	136499.6	84.66	PASS	70-125
LLCCV1	CCV2	1	85646.6	100012.2	85.64	PASS	70-125	107770.8	136499.6	78.95	PASS	70-125
ICSA2	ICSA	1	84971.1	100012.2	84.96	PASS	70-125	103779.4	136499.6	76.029	PASS	70-125
ICSAB2	ICSAB	1	82801.6	100012.2	82.79	PASS	70-125	101831.2	136499.6	74.6	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2845775.8	2845775.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2874142.9	2845775.8	101	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2799851.3	2845775.8	98.39	PASS	70-125
Std3-5/50 ppb	ICAL	1	2813504.1	2845775.8	98.87	PASS	70-125
Std4-10/100 ppb	ICAL	1	2822871.5	2845775.8	99.2	PASS	70-125
Std5-20/200 ppb	ICAL	1	2870319	2845775.8	100.86	PASS	70-125
Std6-40/400 ppb	ICAL	1	2820131.7	2845775.8	99.099	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2749543.6	2845775.8	96.62	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2742588.5	2845775.8	96.37	PASS	70-125
ICV	ICV	1	2995591.6	2845775.8	105.26	PASS	70-125
ICB	ICB	1	3041627.3	2845775.8	106.88	PASS	70-125
LLICV	CCV1	1	2806560.7	2845775.8	98.62	PASS	70-125
ICSA1	ICSA	1	2451049.4	2845775.8	86.13	PASS	70-125
ICSAB1	ICSAB	1	2576944	2845775.8	90.55	PASS	70-125
LLICV	CCV1	1	2844652.7	2845775.8	99.96	PASS	70-125
CCV1	CCV	1	2845965.4	2845775.8	100.01	PASS	70-125
CCB1	CCB	1	2760292.1	2845775.8	97	PASS	70-125
CCV2	CCV	1	2829391	2845775.8	99.42	PASS	70-125
CCB2	CCB	1	2765017.3	2845775.8	97.16	PASS	70-125
MB-63427	MBLK	1	2611400.1	2845775.8	91.76	PASS	70-125
LCS-63427	LCS	1	2946892.5	2845775.8	103.55	PASS	70-125
N025503-001B	SAMP	1	2434374.1	2845775.8	85.54	PASS	70-125
N025503-001B	SAMP	5	2494721.7	2845775.8	87.66	PASS	70-125
N025503-001B-PS	PS	1	2219640.8	2845775.8	78	PASS	70-125
N025503-001B-MS	MS	1	2419438.7	2845775.8	85.019	PASS	70-125
N025503-001B-MSD	MSD	1	2559192.1	2845775.8	89.93	PASS	70-125
N025503-003B	SAMP	1	2523558	2845775.8	88.68	PASS	70-125
N025503-004B	SAMP	1	2532934.3	2845775.8	89.007	PASS	70-125
CCV3	CCV	1	2752263.7	2845775.8	96.71	PASS	70-125
CCB3	CCB	1	2697391.3	2845775.8	94.79	PASS	70-125
N025503-005B	SAMP	1	2441498	2845775.8	85.79	PASS	70-125
N025503-006B	SAMP	1	2528826.1	2845775.8	88.86	PASS	70-125
N025503-007B	SAMP	1	2502790.3	2845775.8	87.95	PASS	70-125
N025503-008B	SAMP	1	2499556	2845775.8	87.83	PASS	70-125
N025503-009B	SAMP	1	2510858.8	2845775.8	88.23	PASS	70-125
N025503-010B	SAMP	1	2517960.2	2845775.8	88.48	PASS	70-125
N025503-011B	SAMP	1	2539465.5	2845775.8	89.24	PASS	70-125
N025503-012B	SAMP	1	2495629.4	2845775.8	87.7	PASS	70-125
N025503-013B	SAMP	1	2516128.8	2845775.8	88.42	PASS	70-125
N025503-014B	SAMP	1	2488979.6	2845775.8	87.46	PASS	70-125
CCV4	CCV	1	2761967.9	2845775.8	97.055	PASS	70-125

INTERNAL STANDARD: 170828A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
CCB4	CCB	1	2683537.3	2845775.8	94.3	PASS	70-125
N025503-015B	SAMP	1	2467194.8	2845775.8	86.7	PASS	70-125
CCV5	CCV	1	2666193.5	2845775.8	93.69	PASS	70-125
CCB5	CCB	1	2601121	2845775.8	91.4	PASS	70-125
LLCCV1	CCV2	1	2417640.5	2845775.8	84.96	PASS	70-125
ICSA2	ICSA	1	2228583.6	2845775.8	78.31	PASS	70-125
ICSAB2	ICSAB	1	2238117.6	2845775.8	78.65	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N025503
Test Method: EPA 6020
Analysis Date: 8/28/2017

Matrix: Groundwater
Batch No.: 63427

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As, Cr, Mn, Mo and Se. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025503-001B DT 5X	Arsenic	ug/L	2.286563	NA	2.106976	8.52%	10
N025503-001B DT 5X	Barium	ug/L	112.2838	PASS	106.4961	5.43%	10
N025503-001B DT 5X	Chromium	ug/L	0	NA	0		10
N025503-001B DT 5X	Manganese	ug/L	0.773555	NA	0		10
N025503-001B DT 5X	Molybdenum	ug/L	4.553246	NA	4.449648	2.33%	10
N025503-001B DT 5X	Selenium	ug/L	1.613862	NA	1.49466	7.98%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N025503-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:		RunNo: **117521**	
Client ID: **ZZZZZZ**	Batch ID: **63427**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **8/28/2017**		SeqNo: **2749057**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.311	0.10	10.00	2.107	92.0	80	120				
Barium	114.067	1.0	~~100.0~~ 10	106.5	~~7.57~~ 75.7	80	120				S
Manganese	89.573	0.50	100.0	0	89.6	80	120				
Molybdenum	13.966	0.50	10.00	4.450	95.2	80	120				
Selenium	10.036	0.50	10.00	1.495	85.4	80	120				

8/31/2017
for

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025503
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N025503-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	117520
Client ID:	ZZZZZZ	Batch ID:	63427	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	8/28/2017	SeqNo:	2748977

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.003	1.0	10.00	0	90.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

September 25, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N025788

RE: PG&E Topock - PMP, RC000753.801B

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 07, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025788

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N025788-002B-MS2 and N025788-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Because the results for total dissolved chromium (4.5 ug/L) and hexavalent chromium (9.0 ug/L) for sample N025788-001 (PE-01-0917) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 4.6 and 7.6 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (4.5 ug/L) and hexavalent chromium (9.0 ug/L) for sample N025788-001 (PE-01-0917) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *25-Sep-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025788
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025788-001A	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-001B	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-001C	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-001D	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-002A	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017
N025788-002B	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017
N025788-002C	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017
N025788-002D	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170908B**	QC Batch: **R117747**			PrepDate			Analyst: **LR**
Specific Conductance	4300	0.10	0.10		umhos/cm	1	9/8/2017 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170908B**	QC Batch: **R117747**			PrepDate			Analyst: **LR**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	9/8/2017 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N025788-002CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**117747**
Client ID:	**ZZZZZZ**	Batch ID:	**R117747**	TestNo:	**EPA 120.1**			Analysis Date:	**9/8/2017**	SeqNo:	**2758450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7310.000	0.10						7290	0.274	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170908A**	QC Batch: **R117746**			PrepDate			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	9/8/2017 09:00 AM
Temp. at time of pH Analysis	17	0.10	0.10	H	°C	1	9/8/2017 09:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170908A**	QC Batch: **R117746**			PrepDate			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	9/8/2017 09:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	9/8/2017 09:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025788-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **117746**
Client ID: **ZZZZZZ** Batch ID: **R117746** TestNo: **SM4500-H+B** Analysis Date: **9/8/2017** SeqNo: **2758446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.400	0.10						7.380	0.271	10	H
Temp. at time of pH Analysis	17.300	0.10						17.40	0.576	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170911F**	QC Batch: **63729**			PrepDate	**9/11/2017**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2600	33	33		mg/L	1	9/11/2017 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170911F**	QC Batch: **63729**			PrepDate	**9/11/2017**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	9/11/2017 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-63729**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/11/2017**	RunNo: **117798**
Client ID: **LCSW**	Batch ID: **63729**	TestNo: **SM2540C**		Analysis Date: **9/11/2017**	SeqNo: **2760566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	961.000	10	1000	0	96.1	80	120				

Sample ID **MB-63729**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/11/2017**	RunNo: **117798**
Client ID: **PBW**	Batch ID: **63729**	TestNo: **SM2540C**		Analysis Date: **9/11/2017**	SeqNo: **2760567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N025788-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/11/2017**	RunNo: **117798**
Client ID: **ZZZZZZ**	Batch ID: **63729**	TestNo: **SM2540C**		Analysis Date: **9/11/2017**	SeqNo: **2760572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4420.000	50						4300	2.75	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170919E**	QC Batch: **63751**				PrepDate	**9/13/2017**	Analyst: **CEI**
Calcium	170000	28	500		µg/L	1	9/19/2017 05:47 PM
Iron	ND	1.8	20		µg/L	1	9/19/2017 05:47 PM
Magnesium	34000	4.4	100		µg/L	1	9/19/2017 05:47 PM
Sodium	790000	1300	25000		µg/L	50	9/20/2017 08:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170919E**	QC Batch: **63751**			PrepDate	**9/13/2017**	Analyst: **CEI**	
Calcium	220000	28	500		µg/L	1	9/19/2017 06:14 PM
Iron	ND	1.8	20		µg/L	1	9/19/2017 06:14 PM
Magnesium	28000	4.4	100		µg/L	1	9/19/2017 06:14 PM
Sodium	1400000	1300	25000		µg/L	50	9/20/2017 08:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-63751**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/13/2017**	RunNo: **117997**
Client ID: **PBW**	Batch ID: **63751**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	28.280	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-63751**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/13/2017**	RunNo: **117997**
Client ID: **LCSW**	Batch ID: **63751**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10433.205	500	10000	0	104	85	115				
Iron	113.361	20	100.0	0	113	85	115				
Magnesium	11025.699	100	10000	0	110	85	115				

Sample ID **N025788-001B-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/13/2017**	RunNo: **117997**
Client ID: **ZZZZZZ**	Batch ID: **63751**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	177721.384	500	10000	165200	125	75	125				
Iron	103.771	20	100.0	0	104	75	125				
Magnesium	44318.395	100	10000	34480	98.4	75	125				

Sample ID **N025788-001B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **9/13/2017**	RunNo: **117997**
Client ID: **ZZZZZZ**	Batch ID: **63751**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	177642.229	500	10000	165200	124	75	125	177700	0.0445	20	
Iron	103.100	20	100.0	0	103	75	125	103.8	0.648	20	
Magnesium	44134.110	100	10000	34480	96.5	75	125	44320	0.417	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-63751	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019
Client ID:	PBW	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770829

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID	LCS2-63751	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019
Client ID:	LCSW	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770830

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20112.123	500	20000	0	101	85	115				

Sample ID	N025788-002B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019
Client ID:	ZZZZZZ	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770837

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1507898.739	25000	20000	1447000	303	75	125				S

Sample ID	N025788-002B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019
Client ID:	ZZZZZZ	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770838

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1545212.372	25000	20000	1447000	490	75	125	1508000	2.44	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_170911E** QC Batch: **63702** PrepDate **9/8/2017** Analyst: **CEI**							
Manganese	68	0.056	0.50		µg/L	1	9/11/2017 09:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_170911E** QC Batch: **63702** PrepDate **9/8/2017** Analyst: **CEI**							
Manganese	9.5	0.056	0.50		µg/L	1	9/11/2017 09:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-63702**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **PBW**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **LCS-63702**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **LCSW**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.824	0.50	100.0	0	102	85	115				

Sample ID **N025755-002D-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **ZZZZZZ**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	89.367	0.50	100.0	4.472	84.9	75	125				

Sample ID **N025755-002D-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **ZZZZZZ**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	88.805	0.50	100.0	4.472	84.3	75	125	89.37	0.631	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170908A**	QC Batch: **R117754**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	9.0	0.033	0.20		µg/L	1	9/8/2017 10:43 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170911D**	QC Batch: **63702**			PrepDate	**9/8/2017**		Analyst: **CEI**
Chromium	4.5	0.019	1.0		µg/L	1	9/11/2017 09:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-002

Client Sample ID: TW-03D-0917
Collection Date: 9/7/2017 1:09:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170913A**	QC Batch: **R117838**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	550	3.3	20		µg/L	100	9/13/2017 12:10 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170912C**	QC Batch: **63702**			PrepDate	**9/8/2017**		Analyst: **CEI**
Chromium	540	0.096	5.0		µg/L	5	9/12/2017 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-63702	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	PBW	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63702	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	LCSW	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.938	1.0	10.00	0	99.4	85	115				

Sample ID	N025755-002D-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	ZZZZZZ	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761513

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.758	1.0	10.00	0.4375	83.2	75	125				

Sample ID	N025755-002D-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	ZZZZZZ	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.862	1.0	10.00	0.4375	84.2	75	125	8.758	1.18	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R117754	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	PBW	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758524

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R117754	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	LCSW	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758525

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	0.20	5.000	0	99.2	90	110				

Sample ID	N025788-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	ZZZZZZ	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758527

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1193.510	20	500.0	696.3	99.4	90	110				

Sample ID	N025788-002AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	ZZZZZZ	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758528

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1169.450	20	500.0	696.3	94.6	90	110	1194	2.04	20	

Sample ID	N025790-006ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	ZZZZZZ	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.359	0.20						2.407	2.02	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025788-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	ZZZZZZ	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14.008	0.20	5.000	9.050	99.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R117838	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	PBW	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R117838	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	LCSW	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.932	0.20	5.000	0	98.6	90	110				

Sample ID	N025871-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762507

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.795	0.20						1.786	0.525	20	

Sample ID	N025871-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762508

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.833	0.20	1.000	1.786	105	90	110				

Sample ID	N025871-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.874	0.20	1.000	1.786	109	90	110	2.833	1.46	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025788-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2764050

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1039.580	20	500.0	548.5	98.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170908C**	QC Batch: **R117748**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	9/8/2017 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170908C**	QC Batch: **R117748**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	9/8/2017 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R117748**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **LCSW**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758475**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.588	5.0	100.0	0	97.6	85	115				

Sample ID **MB-R117748**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **PBW**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N025788-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **ZZZZZZ**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758478**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	236.842	5.0						230.3	2.82	30	

Sample ID **N025788-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **ZZZZZZ**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	247.807	5.0	100.0	146.9	101	75	125				

Sample ID **N025788-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **ZZZZZZ**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	245.614	5.0	100.0	146.9	98.7	75	125	247.8	0.889	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A** QC Batch: **R117768**				PrepDate			Analyst: **RAB**
Chloride	1200	1.8	100		mg/L	200	9/8/2017 12:44 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A** QC Batch: **R117768**				PrepDate			Analyst: **RAB**
Sulfate	370	1.1	25		mg/L	50	9/8/2017 03:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A**	QC Batch: **R117768**			PrepDate			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	9/8/2017 01:46 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A**	QC Batch: **R117768**			PrepDate			Analyst: **RAB**
Sulfate	500	1.1	25		mg/L	50	9/8/2017 03:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R117768_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	PBW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759083

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.078	0.50									

Sample ID	LCS-R117768_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	LCSW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759084

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.975	0.50	2.000	0	98.8	90	110				

Sample ID	N025788-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759088

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1185.900	100						1191	0.432	20	

Sample ID	N025788-001CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759089

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1612.000	100	400.0	1191	105	80	120				

Sample ID	N025788-001CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759090

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1606.260	100	400.0	1191	104	80	120	1612	0.357	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R117768_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	PBW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759101

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.149	0.50									

Sample ID	LCS-R117768_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	LCSW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759102

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.944	0.50	4.000	0	98.6	90	110				

Sample ID	N025788-002CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759109

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	496.745	25						499.7	0.592	20	

Sample ID	N025788-002CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759110

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	703.130	25	200.0	499.7	102	80	120				

Sample ID	N025788-002CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759111

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	701.725	25	200.0	499.7	101	80	120	703.1	0.200	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170911B**	QC Batch: **R117783**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.15	0.022	0.050		mg/L	1	9/11/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170911B**	QC Batch: **R117783**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.8	0.11	0.25		mg/L	5	9/11/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117783	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	PBW	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759795

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R117783	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	LCSW	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759796

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.511	0.050	0.5000	0	102	85	115				

Sample ID	N025755-002EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	ZZZZZZ	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759798

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.815	0.25						2.731	3.01	20	

Sample ID	N025755-002EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	ZZZZZZ	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759799

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.422	0.25	2.500	2.731	108	75	125				

Sample ID	N025755-002EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	ZZZZZZ	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759800

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.561	0.25	2.500	2.731	113	75	125	5.422	2.53	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y N; 1. Chilled; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Global ID: Specify State:
Submitted By:		Phone: 949-727-1400, ext 200 Fax:	Sample Temp: 3.7°C
Title:	Phone: 916-786-3302 Fax:		
Signature: Date:	Sampled By: Jed P. Gamilo	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - PMP	Signature: Date: 9.7.17		
Project Number: RC000753.801B			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)		Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025788 - 01	PE-01-0917	9.7.17	1253		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	- 02	TW-03D-0917	9.7.17	1305		X		X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name):	Date/Time:
Jed Gamilo	9-7-17 1310	pang alang	9/7/17 1310
pang alang	9/7/17 1955	pang alang	9/7/17 1955

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
x	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/7/2017	Workorder:	N025788
Rep sample Temp (Deg C):	3.7	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past HT upon receipt.

Checklist Completed By: YR 9/8/2017

Reviewed By: 9/15/2017

ASSET Laboratories

WORK ORDER Summary

07-Sep-17

WorkOrder: N025788

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 9/7/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025788-001A	PE-01-0917	9/7/2017 12:53:00 PM	9/21/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025788-001B			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025788-001C			9/21/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			9/21/2017		SM4500-H+B	pH	☐	☐	☐	WW
			9/21/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			9/21/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			9/21/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025788-001D			9/21/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025788-002A	TW-03D-0917	9/7/2017 1:09:00 PM	9/21/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025788-002B			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025788-002C			9/21/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

07-Sep-17

WorkOrder: N025788

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 9/7/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025788-002C	TW-03D-0917	9/7/2017 1:09:00 PM	9/21/2017	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			9/21/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			9/21/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			9/21/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025788-002D			9/21/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025788-003A	FOLDER	9/21/2017	9/21/2017		EDD	RWQCB	☐	☐	☐	LAB
			9/21/2017		Folder	Folder	☐	☐	☐	LAB
			9/21/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801B

ASSET Laboratories Work Order:

N025788

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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September 25, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N025788

RE: PG&E Topock - PMP, RC000753.801B

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 07, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025788

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling;sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N025788-002B-MS2 and N025788-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Because the results for total dissolved chromium (4.5 ug/L) and hexavalent chromium (9.0 ug/L) for sample N025788-001 (PE-01-0917) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 4.6 and 7.6 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (4.5 ug/L) and hexavalent chromium (9.0 ug/L) for sample N025788-001 (PE-01-0917) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

ASSET LABORATORIES
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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *25-Sep-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801B
Lab Order: N025788
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025788-001A	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-001B	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-001C	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-001D	PE-01-0917	Groundwater	9/7/2017 12:53:00 PM	9/7/2017	9/25/2017
N025788-002A	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017
N025788-002B	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017
N025788-002C	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017
N025788-002D	TW-03D-0917	Groundwater	9/7/2017 1:09:00 PM	9/7/2017	9/25/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170908B**	QC Batch: **R117747**			PrepDate			Analyst: **LR**
Specific Conductance	4300	0.10	0.10		umhos/cm	1	9/8/2017 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-002

Client Sample ID: TW-03D-0917
Collection Date: 9/7/2017 1:09:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170908B**	QC Batch: **R117747**			PrepDate			Analyst: **LR**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	9/8/2017 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N025788-002CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:					RunNo: **117747**	
Client ID: **ZZZZZZ**	Batch ID: **R117747**	TestNo: **EPA 120.1**		Analysis Date: **9/8/2017**					SeqNo: **2758450**	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7310.000	0.10						7290	0.274	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170908A**	QC Batch: **R117746**			PrepDate			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	9/8/2017 09:00 AM
Temp. at time of pH Analysis	17	0.10	0.10	H	°C	1	9/8/2017 09:00 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-002

Client Sample ID: TW-03D-0917
Collection Date: 9/7/2017 1:09:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_170908A**	QC Batch: **R117746**			PrepDate			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	9/8/2017 09:00 AM
Temp. at time of pH Analysis	19	0.10	0.10	H	°C	1	9/8/2017 09:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N025788-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **117746**
Client ID: **ZZZZZZ** Batch ID: **R117746** TestNo: **SM4500-H+B** Analysis Date: **9/8/2017** SeqNo: **2758446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.400	0.10						7.380	0.271	10	H
Temp. at time of pH Analysis	17.300	0.10						17.40	0.576	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170911F**	QC Batch: **63729**				PrepDate	**9/11/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2600	33	33		mg/L	1	9/11/2017 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_170911F**	QC Batch: **63729**			PrepDate	**9/11/2017**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	9/11/2017 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-63729**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/11/2017**	RunNo: **117798**
Client ID: **LCSW**	Batch ID: **63729**	TestNo: **SM2540C**		Analysis Date: **9/11/2017**	SeqNo: **2760566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	961.000	10	1000	0	96.1	80	120				

Sample ID **MB-63729**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/11/2017**	RunNo: **117798**
Client ID: **PBW**	Batch ID: **63729**	TestNo: **SM2540C**		Analysis Date: **9/11/2017**	SeqNo: **2760567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N025788-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **9/11/2017**	RunNo: **117798**
Client ID: **ZZZZZZ**	Batch ID: **63729**	TestNo: **SM2540C**		Analysis Date: **9/11/2017**	SeqNo: **2760572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4420.000	50						4300	2.75	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170919E**	QC Batch: **63751**				PrepDate	**9/13/2017**	Analyst: **CEI**
Calcium	170000	28	500		µg/L	1	9/19/2017 05:47 PM
Iron	ND	1.8	20		µg/L	1	9/19/2017 05:47 PM
Magnesium	34000	4.4	100		µg/L	1	9/19/2017 05:47 PM
Sodium	790000	1300	25000		µg/L	50	9/20/2017 08:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-002

Client Sample ID: TW-03D-0917
Collection Date: 9/7/2017 1:09:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_170919E**	QC Batch: **63751**				PrepDate	**9/13/2017**	Analyst: **CEI**
Calcium	220000	28	500		µg/L	1	9/19/2017 06:14 PM
Iron	ND	1.8	20		µg/L	1	9/19/2017 06:14 PM
Magnesium	28000	4.4	100		µg/L	1	9/19/2017 06:14 PM
Sodium	1400000	1300	25000		µg/L	50	9/20/2017 08:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **MB-63751** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/13/2017** RunNo: **117997**
Client ID: **PBW** Batch ID: **63751** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	28.280	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-63751** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/13/2017** RunNo: **117997**
Client ID: **LCSW** Batch ID: **63751** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10433.205	500	10000	0	104	85	115				
Iron	113.361	20	100.0	0	113	85	115				
Magnesium	11025.699	100	10000	0	110	85	115				

Sample ID **N025788-001B-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/13/2017** RunNo: **117997**
Client ID: **ZZZZZZ** Batch ID: **63751** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	177721.384	500	10000	165200	125	75	125				
Iron	103.771	20	100.0	0	104	75	125				
Magnesium	44318.395	100	10000	34480	98.4	75	125				

Sample ID **N025788-001B-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **9/13/2017** RunNo: **117997**
Client ID: **ZZZZZZ** Batch ID: **63751** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	177642.229	500	10000	165200	124	75	125	177700	0.0445	20	
Iron	103.100	20	100.0	0	103	75	125	103.8	0.648	20	
Magnesium	44134.110	100	10000	34480	96.5	75	125	44320	0.417	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID	MB-63751	SampType:	MBLK	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019	
Client ID:	PBW	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770829	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		ND	500									

Sample ID	LCS2-63751	SampType:	LCS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019	
Client ID:	LCSW	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770830	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		20112.123	500	20000	0	101	85	115				

Sample ID	N025788-002B-MS2	SampType:	MS	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019	
Client ID:	ZZZZZZ	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770837	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		1507898.739	25000	20000	1447000	303	75	125				S

Sample ID	N025788-002B-MSD	SampType:	MSD	TestCode:	200.7_WDPG	Units:	µg/L	Prep Date:	9/13/2017	RunNo:	118019	
Client ID:	ZZZZZZ	Batch ID:	63751	TestNo:	EPA 200.7			Analysis Date:	9/20/2017	SeqNo:	2770838	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		1545212.372	25000	20000	1447000	490	75	125	1508000	2.44	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_170911E** QC Batch: **63702**				PrepDate	**9/8/2017**		Analyst: **CEI**
Manganese	68	0.056	0.50		µg/L	1	9/11/2017 09:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-002

Client Sample ID: TW-03D-0917
Collection Date: 9/7/2017 1:09:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_170911E** QC Batch: **63702** PrepDate **9/8/2017** Analyst: **CEI**							
Manganese	9.5	0.056	0.50		µg/L	1	9/11/2017 09:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **MB-63702**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **PBW**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **LCS-63702**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **LCSW**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.824	0.50	100.0	0	102	85	115				

Sample ID **N025755-002D-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **ZZZZZZ**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	89.367	0.50	100.0	4.472	84.9	75	125				

Sample ID **N025755-002D-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **9/8/2017**	RunNo: **117820**
Client ID: **ZZZZZZ**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	88.805	0.50	100.0	4.472	84.3	75	125	89.37	0.631	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170908A**	QC Batch: **R117754**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	9.0	0.033	0.20		µg/L	1	9/8/2017 10:43 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170911D**	QC Batch: **63702**			PrepDate	**9/8/2017**		Analyst: **CEI**
Chromium	4.5	0.019	1.0		µg/L	1	9/11/2017 09:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-002

Client Sample ID: TW-03D-0917
Collection Date: 9/7/2017 1:09:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170913A** QC Batch: **R117838**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	550	3.3	20		µg/L	100	9/13/2017 12:10 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_170912C** QC Batch: **63702**				PrepDate	**9/8/2017**		Analyst: **CEI**
Chromium	540	0.096	5.0		µg/L	5	9/12/2017 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-63702	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	PBW	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63702	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	LCSW	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.938	1.0	10.00	0	99.4	85	115				

Sample ID	N025755-002D-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	ZZZZZZ	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761513

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.758	1.0	10.00	0.4375	83.2	75	125				

Sample ID	N025755-002D-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117819
Client ID:	ZZZZZZ	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761516

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.862	1.0	10.00	0.4375	84.2	75	125	8.758	1.18	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R117754**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **PBW**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R117754**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **LCSW**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	0.20	5.000	0	99.2	90	110				

Sample ID **N025788-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ZZZZZZ**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1193.510	20	500.0	696.3	99.4	90	110				

Sample ID **N025788-002AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ZZZZZZ**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1169.450	20	500.0	696.3	94.6	90	110	1194	2.04	20	

Sample ID **N025790-006ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ZZZZZZ**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.359	0.20						2.407	2.02	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025788-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117754
Client ID:	ZZZZZZ	Batch ID:	R117754	TestNo:	EPA 218.6			Analysis Date:	9/8/2017	SeqNo:	2758539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	14.008	0.20	5.000	9.050	99.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R117838	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	PBW	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762504

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R117838	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	LCSW	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.932	0.20	5.000	0	98.6	90	110				

Sample ID	N025871-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762507

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.795	0.20						1.786	0.525	20	

Sample ID	N025871-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762508

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.833	0.20	1.000	1.786	105	90	110				

Sample ID	N025871-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2762509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.874	0.20	1.000	1.786	109	90	110	2.833	1.46	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N025788-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	117838
Client ID:	ZZZZZZ	Batch ID:	R117838	TestNo:	EPA 218.6			Analysis Date:	9/13/2017	SeqNo:	2764050

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1039.580	20	500.0	548.5	98.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170908C**	QC Batch: **R117748**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	9/8/2017 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_170908C**	QC Batch: **R117748**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	9/8/2017 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R117748**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **LCSW**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758475**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.588	5.0	100.0	0	97.6	85	115				

Sample ID **MB-R117748**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **PBW**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N025788-001CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **ZZZZZZ**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758478**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	236.842	5.0						230.3	2.82	30	

Sample ID **N025788-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **ZZZZZZ**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	247.807	5.0	100.0	146.9	101	75	125				

Sample ID **N025788-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **117748**
Client ID: **ZZZZZZ**	Batch ID: **R117748**	TestNo: **SM 2320 B**		Analysis Date: **9/8/2017**	SeqNo: **2758481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	245.614	5.0	100.0	146.9	98.7	75	125	247.8	0.889	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N025788
Project: PG&E Topock - PMP, RC000753.801B
Lab ID: N025788-001

Client Sample ID: PE-01-0917
Collection Date: 9/7/2017 12:53:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A**	QC Batch: **R117768**			PrepDate			Analyst: **RAB**
Chloride	1200	1.8	100		mg/L	200	9/8/2017 12:44 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A**	QC Batch: **R117768**			PrepDate			Analyst: **RAB**
Sulfate	370	1.1	25		mg/L	50	9/8/2017 03:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A**	QC Batch: **R117768**			PrepDate			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	9/8/2017 01:46 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_170908A**	QC Batch: **R117768**			PrepDate			Analyst: **RAB**
Sulfate	500	1.1	25		mg/L	50	9/8/2017 03:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R117768_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	PBW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759083

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.078	0.50									

Sample ID	LCS-R117768_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	LCSW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759084

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.975	0.50	2.000	0	98.8	90	110				

Sample ID	N025788-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759088

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1185.900	100						1191	0.432	20	

Sample ID	N025788-001CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759089

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1612.000	100	400.0	1191	105	80	120				

Sample ID	N025788-001CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759090

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1606.260	100	400.0	1191	104	80	120	1612	0.357	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R117768_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	PBW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759101

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.149	0.50									

Sample ID	LCS-R117768_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	LCSW	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759102

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.944	0.50	4.000	0	98.6	90	110				

Sample ID	N025788-002CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759109

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	496.745	25						499.7	0.592	20	

Sample ID	N025788-002CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759110

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	703.130	25	200.0	499.7	102	80	120				

Sample ID	N025788-002CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	117768
Client ID:	ZZZZZZ	Batch ID:	R117768	TestNo:	EPA 300.0			Analysis Date:	9/8/2017	SeqNo:	2759111

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	701.725	25	200.0	499.7	101	80	120	703.1	0.200	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 12:53:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170911B**	QC Batch: **R117783**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.15	0.022	0.050		mg/L	1	9/11/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0917
Lab Order:	N025788	**Collection Date:**	9/7/2017 1:09:00 PM
Project:	PG&E Topock - PMP, RC000753.801B	**Matrix:**	GROUNDWATER
Lab ID:	N025788-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_170911B**	QC Batch: **R117783**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.8	0.11	0.25		mg/L	5	9/11/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117783	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	PBW	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759795

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R117783	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	LCSW	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759796

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.511	0.050	0.5000	0	102	85	115				

Sample ID	N025755-002EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	ZZZZZZ	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759798

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.815	0.25						2.731	3.01	20	

Sample ID	N025755-002EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	ZZZZZZ	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759799

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.422	0.25	2.500	2.731	108	75	125				

Sample ID	N025755-002EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	117783
Client ID:	ZZZZZZ	Batch ID:	R117783	TestNo:	SM4500-NO3			Analysis Date:	9/11/2017	SeqNo:	2759800

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.561	0.25	2.500	2.731	113	75	125	5.422	2.53	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y N; 1. Chilled; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Global ID: Specify State:
Submitted By:		Phone: 949-727-1400, ext 200 Fax:	6. Method of Cooling: Ice
Title:	Phone: 916-786-3302 Fax:		Sample Temp: 3.7°C

Signature: Date:

I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Jed P. McCamillo

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for

Signature: Date: 9.7.17

Project Name: PG&E Topock - PMP

Project Number: RC000753.801B

Courier:

Tracking No.:

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	(1 L poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N025788 - 01	PE-01-0917	9.7.17	1253		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	- 02	TW-03D-0917	9.7.17	1305		X		X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Jed Pickamillo	9-7-17 1310	Pang Lang	9/7/17 1310
Pang Lang	9/7/17 1955	Pang Lang	9/7/17 1955

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/7/2017	Workorder:	N025788
Rep sample Temp (Deg C):	3.7	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past HT upon receipt.

Checklist Completed By: YR 9/8/2017

Reviewed By: 9/15/2017

ASSET Laboratories

WORK ORDER Summary

07-Sep-17

WorkOrder: N025788

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 9/7/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025788-001A	PE-01-0917	9/7/2017 12:53:00 PM	9/21/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025788-001B			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025788-001C			9/21/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			9/21/2017		SM4500-H+B	pH	☐	☐	☐	WW
			9/21/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			9/21/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			9/21/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025788-001D			9/21/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025788-002A	TW-03D-0917	9/7/2017 1:09:00 PM	9/21/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N025788-002B			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/21/2017			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			9/21/2017		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N025788-002C			9/21/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

07-Sep-17

WorkOrder: N025788

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801B **QC Level:** Level IV **Date Received:** 9/7/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N025788-002C	TW-03D-0917	9/7/2017 1:09:00 PM	9/21/2017	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			9/21/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			9/21/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			9/21/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			9/21/2017		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N025788-002D			9/21/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N025788-003A	FOLDER	9/21/2017	9/21/2017		EDD	RWQCB	☐	☐	☐	LAB
			9/21/2017		Folder	Folder	☐	☐	☐	LAB
			9/21/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N025788**

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 200.7, EPA 200.8
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	SM 2320B, SM 2540C, SM 4500-H+B, EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117747 **Analyst:** LSR

ASSET #: N025788 **Date Analyzed:** 9/8/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/8/2017

2nd Level Reviewer: 9/25/2017 Date: ——

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/6/17 1015

Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 µs/cm	CINV-170620B	9.55 µs/cm @ 23.3°C	% Rec: (90-110%)
1411	170329B	1421 @ 23.8°C	
9976	170615H	9930 @ 24.1°C	
99582	170329C	98800 @ 24.1°C	

Sample ID	Matrix	Reading	Comments
1 N025755-001A	H2O	7360 @ 21.4°C	
2 1A DUP		7330 @ 21.3°C	
3 2B		6910 @ 21.7°C	
4			
5			
6			
7			
8 1413 µs/cm	CINV-170615G	1457 µs/cm @ 23.3°C	
10,000	170125E	10160 @ 23.7°C	
99672	170831B	99100 @ 24.0°C	
			Accept: 10% water, 20% soil
Std Chk:			% Rec: (90-110%)

Date: 9/8/17 915

Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 µs/cm	CINV-170620B	9.45 @ 24.1°C	% Rec: (90-110%)
1411	170329B	1408 @ 24.0°C	
9976	170615H	9930 @ 24.0°C	
99582	170329C	99300 @ 24.0°C	

Sample ID	Matrix	Reading	Comments
N025788-001C	H2O	4330 @ 21.7°C	
2C		7290 @ 21.3°C	
2CDUP		7310 @ 20.8°C	
			Julia Ramit 9/8/2017
1413 µs/cm	CINV-170615G	1446 µs/cm @ 23.3°C	
10000	170125E	10310 @ 23.6°C	
99672	170831B	99800 @ 23.8°C	
			Accept: 10% water, 20% soil
Std Chk:			% Rec: (90-110%)

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117746 **Instrument ID:** pH meter

ASSET #: N025788 **Analyst:** LSR

Date Analyzed: 9/8/17

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?			X			
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/8/2017

2nd Level Reviewer: 9/25/2017 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 9/8/17 900
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CINV-170125C	6.95 @23.2°C	SLOPE: 98.4%
Buffer 4	170125B	3.98 @23.2°C	
Buffer 10	170331A	10.03 @23.1°C	

	Sample ID	Matrix	pH	Comments
1	NO25788-001C	H2O	7.38 @17.4°C	
2	ICDUP	"	7.40 @17.3°C	
3	2C	"	7.23 @18.9°C	
4				
5				
6				
7				
8				
9			Julia Ramit	9/8/2017
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CINV-170510A	6.96 @23.0°C	Accept: +/-0.1 pH units from expected value

Date: 9/8/17 1145
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CINV-170125C	6.95 @23.2°C	SLOPE = 98.4%
Buffer 4	170125B	3.98 @23.2°C	
Buffer 10	170331A	10.03 @23.1°C	

	Sample ID	Matrix	pH	Comments
1	NO25677-001A	Soil	3.71 @24.2°C	
2	1ADUP	"	3.84 @24.2°C	
3				
4				
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CINV-170510A	7.05 @24.7°C	Accept: +/-0.1 pH units from expected value

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63729 **Analyst:** LSR

ASSET #: N025788 **Date Analyzed:** 9/11/2017

Method: EPA 160.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/13/2017

2nd Level Reviewer: [illegible] 9/25/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N025788-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.2162 - 59.1384)*1000000}{30}$$
$$= 2593.3333 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 2600 mg/L

Julia Ramit 9/13/2017

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/11/2017 12:52:41**
Prep End Date: **9/12/2017 9:55:00 A**

Reviewed/ Date: 9/25/2017
Initials/ Date: Lilia Ramit 9/13/2017

Prep Batch **63729** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63729	Water		100	☐	0	0	100	1.000		
MB-63729	Water		100	☐	0	0	100	1.000		
N025787-001C	Water		75	☐	0	0	100	1.333		
N025787-002C	Water		75	☐	0	0	100	1.333		
N025788-001C	Groundwater		30	☐	0	0	100	3.333		
N025788-002C	Groundwater		20	☐	0	0	100	5.000		
N025788-002C-DU	Groundwater		20	☐	0	0	100	5.000		
N025803-001A	Water		75	☐	0	0	100	1.333		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9132	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST170831C	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/11/2017 12:52:41**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 9/13/2017

Prep Batch **63729** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit** Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63729	Water	IWS 170831C	100	☐	0	0	100	1.000		
MB-63729	Water		100	☐	0	0	100	1.000		
N025787-001C	Water	1543	100 /75	☐	0	0	100	1.000		
N025787-002C	Water	1582	100 /75	☐	0	0	100	1.000		
N025788-001C	Groundwater	4580	100 /30	☐	0	0	100	1.000		
N025788-002C	Groundwater	7707	100 /20	☐	0	0	100	1.000		
N025788-002C-DU	Groundwater	1	100 /20	☐	0	0	100	1.000		
N025803-001A	Water	1709	100 /75	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9132

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
9/11/17 1252 LJ	MB 63729	100	77.1085 77.1085	77.1089 77.1088	
LJ	LCS 63729	100	74.5962 74.5958	74.6920 74.6919	
10	N025787-001C	75	53.7874 53.7873	53.8739 53.8743	
2	2C	75	55.5281 55.5279	55.6242 55.6245	
2	N025788-001C	30	59.1380 59.1384	59.2159 59.2162	
1B	2C	20	59.6080 59.6082	59.6939 59.6942	
1A	2C DUP	20	61.0298 61.0301	61.1182 61.1185	
1	N025803-001A	75	53.5252 53.5251	53.7015 53.7018	
	Julia Ramit 9/13/2017				

ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921
NEVADA | P:702.307.2659 F:702.307.2691 3151 W. Post Rd., Las Vegas, NV 89118 ELAP Cert 2676 | NV Cert NV00[illegible]

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
9/12/2017									
MB-63729	100	77.1085	77.1088	3	1	3			MBLK
LCS-63729	100	74.5958	74.6919	961	1	961			LCS
N025787-001C	75	53.7873	53.8743	870	1.33333333	1160	1543	0.752	SAMP
N025787-002C	75	55.5279	55.6245	966	1.33333333	1288	1582	0.814	SAMP
N025788-001C	30	59.1384	59.2162	778	3.33333333	2593.33333	4580	0.566	SAMP
N025788-002C	20	59.6082	59.6942	860	5	4300	7700	0.558	SAMP
N025788-002CDUP	20	61.0301	61.1185	884	5	4420	7700	0.574	DUP
N025803-001A	75	53.5251	53.7018	1767	1.33333333	2356	1709	1.379	SAMP

Sirisha Ramisetty 9/13/2017

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63751
ASSET #: N025788

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/19/2017

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits		X				
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented		X				
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

%Rec of Ca in N025788-001B PS failed. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 9/25/2017 Date:

2nd Level Reviewer 9/25/2017 Date:

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63751
ASSET #: N025788

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 9/20/2017

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits		X				
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented		X				
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

%Rec of Na in N025788-002B PS/MS/MSD failed. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 9/25/2017 Date: —

2nd Level Reviewer 9/25/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 200.7
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Calcium concentration, in ug/L , in the original sample as follows:

Calcium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N025788-001B** , the concentration ir ug/L is calculated as follows:

Calcium , ug/L = 165.232 * 1 * (25/25) * 1000

Calcium , ug/L = 165232

Reporting results in two significant figures,

Calcium , ug/L = 170000

% RSD SUMMARY

RSD SUMMARY: 170919B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	3.2	15	PASS
Standard1	ICAL	1	Ca	0.2	20.078	15	<PQL
Standard2	ICAL	1	Ca	1	10.18	15	PASS
Standard3	ICAL	1	Ca	2	3.1	15	PASS
Standard4	ICAL	1	Ca	5	0.71	15	PASS
Standard5	ICAL	1	Ca	7.5	0.77	15	PASS
Standard6	ICAL	1	Ca	10	0.43	15	PASS
Standard7	ICAL	1	Ca	20	0.93	15	PASS
ICV	ICV	1	Ca	10.092	0.81	15	PASS
ICB	ICB	1	Ca	0.024	265.76	15	<PQL
LLICV	CCV1	1	Ca	0.22	25.16	20	<PQL
LLICV	CCV1	1	Ca	0.18	28.87	20	<PQL
ICSA1	ICSA	1	Ca	566.72	0.76	15	PASS
ICSAB1	ICSAB	1	Ca	579.44	0.46	15	PASS
CCV1	CCV	1	Ca	10.47	0.97	15	PASS
CCB1	CCB	1	Ca	0.035	124.26	15	<PQL
MB-63751	MBLK	1	Ca	0.028	126.025	15	<PQL
LCS1-63751	LCS	1	Ca	10.43	1.36	15	PASS
N025788-001B	SAMP	1	Ca	165.23	1.06	15	PASS
N025788-001B	SAMP	5	Ca	31.48	0.3	15	PASS
N025788-001B-PS	PS	1	Ca	180.63	0.32	15	PASS
N025788-001B-MS	MS	1	Ca	177.72	0.35	15	PASS
N025788-001B-MSD	MSD	1	Ca	177.64	0.36	15	PASS
N025788-002B	SAMP	1	Ca	220.83	0.32	15	PASS
CCV2	CCV	1	Ca	10.74	0.7	15	PASS
CCB2	CCB	1	Ca	0.023	73.71	15	<PQL
LLCCV1	CCV2	1	Ca	0.28	13.55	20	PASS
ICSA2	ICSA	1	Ca	591.48	0.19	15	PASS
ICSAB2	ICSAB	1	Ca	603.38	0.5	15	PASS
ICSAB3	ICSAB	1	Ca	580.98	0.8	15	PASS
CalBlk	IBLK	1	Fe	0	135.018	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.099	15	PASS
Standard2	ICAL	1	Fe	0.05	1.1	15	PASS
Standard3	ICAL	1	Fe	2	0.71	15	PASS
Standard4	ICAL	1	Fe	5	0.017	15	PASS
Standard5	ICAL	1	Fe	7.5	0.41	15	PASS
Standard6	ICAL	1	Fe	10	0.47	15	PASS
Standard7	ICAL	1	Fe	20	0.079	15	PASS
ICV	ICV	1	Fe	10.25	0.51	15	PASS
ICB	ICB	1	Fe	0.0029	36.37	15	<PQL
LLICV	CCV1	1	Fe	0.027	1.027	20	PASS
LLICV	CCV1	1	Fe	0.023	3.6	20	PASS

RSD SUMMARY: 170919B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSA1	ICSA	1	Fe	184.47	0.052	15	PASS
ICSAB1	ICSAB	1	Fe	190.38	0.059	15	PASS
CCV1	CCV	1	Fe	10.49	0.92	15	PASS
CCB1	CCB	1	Fe	0.0027	13.58	15	PASS
MB-63751	MBLK	1	Fe	0.00037	125.066	15	<PQL
LCS1-63751	LCS	1	Fe	0.11	0.33	15	PASS
N025788-001B	SAMP	1	Fe	-0.00039	74.19	15	<PQL
N025788-001B	SAMP	5	Fe	0.0012	23.21	15	<PQL
N025788-001B-PS	PS	1	Fe	0.1	0.72	15	PASS
N025788-001B-MS	MS	1	Fe	0.1	0.61	15	PASS
N025788-001B-MSD	MSD	1	Fe	0.1	1.73	15	PASS
N025788-002B	SAMP	1	Fe	-0.001	101.97	15	<PQL
CCV2	CCV	1	Fe	10.52	0.23	15	PASS
CCB2	CCB	1	Fe	0.0014	11.88	15	PASS
LLCCV1	CCV2	1	Fe	0.022	1.95	20	PASS
ICSA2	ICSA	1	Fe	187.38	0.024	15	PASS
ICSAB2	ICSAB	1	Fe	193.25	0.11	15	PASS
ICSAB3	ICSAB	1	Fe	185.39	0.086	15	PASS
CalBlk	IBLK	1	Mg	0	5.91	15	PASS
Standard1	ICAL	1	Mg	0.1	0.53	15	PASS
Standard2	ICAL	1	Mg	1	0.49	15	PASS
Standard3	ICAL	1	Mg	2	0.61	15	PASS
Standard4	ICAL	1	Mg	5	0.38	15	PASS
Standard5	ICAL	1	Mg	7.5	0.41	15	PASS
Standard6	ICAL	1	Mg	10	0.56	15	PASS
Standard7	ICAL	1	Mg	20	0.22	15	PASS
ICV	ICV	1	Mg	10.26	0.4	15	PASS
ICB	ICB	1	Mg	-0.00069	124.27	15	<PQL
LLICV	CCV1	1	Mg	0.13	0.46	20	PASS
LLICV	CCV1	1	Mg	0.12	1.36	20	PASS
ICSA1	ICSA	1	Mg	532.16	0.041	15	PASS
ICSAB1	ICSAB	1	Mg	548.16	0.13	15	PASS
CCV1	CCV	1	Mg	10.7	0.82	15	PASS
CCB1	CCB	1	Mg	-0.0018	17.096	15	<PQL
MB-63751	MBLK	1	Mg	-0.00038	385.21	15	<PQL
LCS1-63751	LCS	1	Mg	11.026	0.75	15	PASS
N025788-001B	SAMP	1	Mg	34.48	0.075	15	PASS
N025788-001B	SAMP	5	Mg	7.4	0.65	15	PASS
N025788-001B-PS	PS	1	Mg	44.97	0.45	15	PASS
N025788-001B-MS	MS	1	Mg	44.32	0.038	15	PASS
N025788-001B-MSD	MSD	1	Mg	44.13	0.085	15	PASS
N025788-002B	SAMP	1	Mg	28.27	0.59	15	PASS

RSD SUMMARY: 170919B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV2	CCV	1	Mg	10.71	0.46	15	PASS
CCB2	CCB	1	Mg	-0.0037	8.18	15	PASS
LLCCV1	CCV2	1	Mg	0.11	0.68	20	PASS
ICSA2	ICSA	1	Mg	544.21	0.06	15	PASS
ICSAB2	ICSAB	1	Mg	559.39	0.25	15	PASS
ICSAB3	ICSAB	1	Mg	534.66	0.19	15	PASS

RSD SUMMARY: 170920C

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0.00	0.53	20	PASS
Standard1	ICAL	1	Na	0.10	7.37	20	PASS
Standard2	ICAL	1	Na	1.00	1.12	20	PASS
Standard3	ICAL	1	Na	5.00	1.09	20	PASS
Standard4	ICAL	1	Na	10.00	0.28	20	PASS
Standard5	ICAL	1	Na	20.00	0.14	20	PASS
Standard6	ICAL	1	Na	40.00	0.23	20	PASS
ICV	ICV	1	Na	9.64	0.07	20	PASS
ICB	ICB	1	Na	-0.32	4.27	20	PASS
ICSA0	ICSA	1	Na	-0.34	2.55	20	PASS
ICSAB0	ICSAB	1	Na	9.64	0.28	20	PASS
MB-63751	MBLK	1	Na	-0.17	6.56	20	PASS
LCS2-63751	LCS	1	Na	20.11	0.16	20	PASS
N925788-001B	SAMP	1	Na	735.52	0.69	20	PASS
N925788-002B	SAMP	1	Na	1275.30	0.78	20	PASS
N925788-001B	SAMP	50	Na	15.83	0.12	20	PASS
N025788-002B	SAMP	50	Na	28.95	0.11	20	PASS
N025788-002B	SAMP	250	Na	5.62	0.23	20	PASS
N025788-002B-PS	PS	50	Na	29.62	0.11	20	PASS
N025788-002B-MS2	MS	50	Na	30.16	0.07	20	PASS
N025788-002B-MSD2	MSD	50	Na	30.90	0.15	20	PASS
CCV0	CCV	1	Na	9.78	0.16	20	PASS
CCB0	CCB	1	Na	-0.42	2.08	20	PASS
ICSA0	ICSA	1	Na	-0.43	1.84	20	PASS
ICSAB0	ICSAB	1	Na	9.72	0.36	20	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170919B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-170430K,0.5<50mL
Standard2	MWST-170601G
Standard3	MWST-170601K,5<50mL
Standard4	MWST-170601K,12.5<50mL
Standard5	MWST-170601K,15<40mL
Standard6	MWST-170601K,25<50mL
Standard7	MWST-170601K
ICV	MWST-170430G
CCV	MWST-170601K,25<50mL
ICSA/ICSAB	MWST-170601L/ MWST-170430H
Int. Std. (Y)	MSST-170404Q/R
PS Spike	MWST-170601Q/-170430B/-170601R

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/19/2017	03:17:54 PM
2	Standard1	ICAL	1	09/19/2017	03:22:11 PM
3	Standard2	ICAL	1	09/19/2017	03:26:30 PM
11	Standard3	ICAL	1	09/19/2017	03:31:19 PM
12	Standard4	ICAL	1	09/19/2017	03:36:10 PM
6	Standard5	ICAL	1	09/19/2017	03:41:01 PM
7	Standard6	ICAL	1	09/19/2017	03:45:51 PM
8	Standard7	ICAL	1	09/19/2017	03:50:40 PM
9	ICV	ICV	1	09/19/2017	03:56:01 PM
1	ICB	ICB	1	09/19/2017	04:00:32 PM
2	LLICV	CCV1	1	09/19/2017	04:04:49 PM
2	LLICV	CCV1	1	09/19/2017	04:12:18 PM
4	ICSA1	ICSA	1	09/19/2017	04:16:36 PM
5	ICSAB1	ICSAB	1	09/19/2017	04:22:32 PM
98	MB-63750	MBLK	1	09/19/2017	04:29:55 PM
99	LCS-63750	LCS	1	09/19/2017	04:38:10 PM
101	N025767-001B	SAMP	5	09/19/2017	04:49:05 PM
157	N025767-001B	SAMP	25	09/19/2017	04:54:51 PM
102	N025767-001B-PS	PS	5	09/19/2017	04:59:43 PM
103	N025767-001B-MS	MS	5	09/19/2017	05:04:34 PM
104	N025767-001B-MSD	MSD	5	09/19/2017	05:09:25 PM
105	N025790-002B	SAMP	1	09/19/2017	05:14:16 PM
106	N025790-003B	SAMP	1	09/19/2017	05:19:08 PM
7	CCV1	CCV	1	09/19/2017	05:23:59 PM
1	CCB1	CCB	1	09/19/2017	05:29:48 PM
107	N025805-001A	SAMP	1	09/19/2017	05:34:07 PM
108	MB-63751	MBLK	1	09/19/2017	05:38:28 PM
109	LCS1-63751	LCS	1	09/19/2017	05:42:51 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
110	N025788-001B	SAMP	1	09/19/2017	05:47:42 PM
111	N025788-001B	SAMP	5	09/19/2017	05:53:04 PM
112	N025788-001B-PS	PS	1	09/19/2017	05:57:56 PM
113	N025788-001B-MS	MS	1	09/19/2017	06:03:18 PM
114	N025788-001B-MSD	MSD	1	09/19/2017	06:08:41 PM
115	N025788-002B	SAMP	1	09/19/2017	06:14:04 PM
7	CCV2	CCV	1	09/19/2017	06:19:26 PM
1	CCB2	CCB	1	09/19/2017	06:25:15 PM
2	LLCCV1	CCV2	1	09/19/2017	06:29:31 PM
4	ICSA2	ICSA	1	09/19/2017	06:33:49 PM
5	ICSAB2	ICSAB	1	09/19/2017	06:39:45 PM
5	ICSAB3	ICSAB	1	09/19/2017	06:44:21 PM

INJECTION LOG: 170920C

Instrument ID: ICP-02

Standard1	MWST-170601A,0.025<50mL
Standard2	MWST-170601A,0.25<50mL
Standard3	MWST-170601A,1.25<50mL
Standard4	MWST-170601A,2.5<50mL
Standard5	MWST-170601A,5<50mL
Standard6	MWST-170601A,10<50mL
ICV	MWST-170228B
CCV	MWST-170601A,2.5<50mL
ICSA/ICSAB	MWST-170601L/MWST-170601B
Int. Std. (Sc):	MSST-170404Q
PS Spike	MSST-130329D/E

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	09/20/2017	07:12:22 PM
26	Standard1	ICAL	1	09/20/2017	07:15:39 PM
27	Standard2	ICAL	1	09/20/2017	07:18:56 PM
28	Standard3	ICAL	1	09/20/2017	07:22:14 PM
29	Standard4	ICAL	1	09/20/2017	07:26:03 PM
30	Standard5	ICAL	1	09/20/2017	07:29:52 PM
31	Standard6	ICAL	1	09/20/2017	07:33:43 PM
32	ICV	ICV	1	09/20/2017	07:37:38 PM
1	ICB	ICB	1	09/20/2017	07:41:28 PM
33	ICSA1	ICSA	1	09/20/2017	07:44:46 PM
34	ICSAB1	ICSAB	1	09/20/2017	07:48:04 PM
108	MB-63751	MBLK	1	09/20/2017	07:51:56 PM
109	LCS2-63751	LCS	1	09/20/2017	07:55:14 PM
110	N925788-001B	SAMP	1	09/20/2017	07:59:07 PM
115	N925788-002B	SAMP	1	09/20/2017	08:04:03 PM
116	N925788-001B	SAMP	50	09/20/2017	08:09:04 PM
117	N025788-002B	SAMP	50	09/20/2017	08:12:56 PM
118	N025788-002B	SAMP	250	09/20/2017	08:16:17 PM
119	N025788-002B-PS	PS	50	09/20/2017	08:19:37 PM
120	N025788-002B-MS2	MS	50	09/20/2017	08:22:58 PM
121	N025788-002B-MSD2	MSD	50	09/20/2017	08:26:18 PM
29	CCV1	CCV	1	09/20/2017	08:29:38 PM
1	CCB1	CCB	1	09/20/2017	08:33:27 PM
33	ICSA2	ICSA	1	09/20/2017	08:36:44 PM
34	ICSAB2	ICSAB	1	09/20/2017	08:40:03 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/13/2017 7:59:25 A**
Prep End Date: **9/13/2017 12:00:00**
Prep Batch **63751** Prep Code: **200.7_PR**

Reviewed/ Date: 9/25/2017
Initials/ Date: FOR 9/25/2017
Technician: **Mark Gesmundo**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**95**	**DB-2-12**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-63751	Aqueous		25	☐	0	0	25	1.000		
LCS2-63751	Aqueous		25	☐	0	0	25	1.000		
MB-63751	Aqueous		25	☐	0	0	25	1.000		
N025788-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025788-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025788-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025788-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025788-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N025788-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9299	HYDROCHLORIC ACID
9397	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-130329D	Sodium	LCS,MS,MSD	0.05
MSST-130329E	Potassium	LCS,MS,MSD	0.05
MSST-170116A	Strontium	LCS,MS,MSD	0.125
MWST-170430B	ICP Solution B	LCS,MS,MSD	0.5
MWST-170601Q	ICP Solution A	LCS,MS,MSD	0.5
MWST-170601R	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170919B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	09/19/2017	03:17:54 PM	Mg	279.079	144	0.00	mg/L	
Standard1	09/19/2017	03:22:11 PM	Mg	279.079	742	0.1000	mg/L	
Standard2	09/19/2017	03:26:30 PM	Mg	279.079	5590	1.000	mg/L	
Standard3	09/19/2017	03:31:19 PM	Mg	279.079	12698	2.000	mg/L	
Standard4	09/19/2017	03:36:10 PM	Mg	279.079	29086	5.000	mg/L	
Standard5	09/19/2017	03:41:01 PM	Mg	279.079	44576	7.500	mg/L	
Standard6	09/19/2017	03:45:51 PM	Mg	279.079	58312	10.000	mg/L	
Standard7	09/19/2017	03:50:40 PM	Mg	279.079	111747	20.000	mg/L	0.9997
Calcium								
CalBlk	09/19/2017	03:17:54 PM	Ca	227.546	-43	0.00	mg/L	
Standard1	09/19/2017	03:22:11 PM	Ca	227.546	19	0.2000	mg/L	
Standard2	09/19/2017	03:26:30 PM	Ca	227.546	94	1.000	mg/L	
Standard3	09/19/2017	03:31:19 PM	Ca	227.546	205	2.000	mg/L	
Standard4	09/19/2017	03:36:10 PM	Ca	227.546	475	5.000	mg/L	
Standard5	09/19/2017	03:41:01 PM	Ca	227.546	725	7.500	mg/L	
Standard6	09/19/2017	03:45:51 PM	Ca	227.546	942	10.000	mg/L	
Standard7	09/19/2017	03:50:40 PM	Ca	227.546	1863	20.000	mg/L	0.9999
Iron								
CalBlk	09/19/2017	03:17:54 PM	Fe	273.953	-2	0.00	mg/L	
Standard1	09/19/2017	03:22:11 PM	Fe	273.953	321	0.0200	mg/L	
Standard2	09/19/2017	03:26:30 PM	Fe	273.953	795	0.050	mg/L	
Standard3	09/19/2017	03:31:19 PM	Fe	273.953	28068	2.000	mg/L	
Standard4	09/19/2017	03:36:10 PM	Fe	273.953	64273	5.000	mg/L	
Standard5	09/19/2017	03:41:01 PM	Fe	273.953	98240	7.500	mg/L	
Standard6	09/19/2017	03:45:51 PM	Fe	273.953	128281	10.000	mg/L	
Standard7	09/19/2017	03:50:40 PM	Fe	273.953	244673	20.000	mg/L	0.9996

INITIAL CALIBRATION SUMMARY: 170920C

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	09/20/2017	07:12:22 PM	Na	589.594	3119	0.00	mg/L	
Standard1	09/20/2017	07:15:39 PM	Na	589.594	157	0.1000	mg/L	
Standard2	09/20/2017	07:18:56 PM	Na	589.594	2199	1.000	mg/L	
Standard3	09/20/2017	07:22:14 PM	Na	589.594	12755	5.000	mg/L	
Standard4	09/20/2017	07:26:03 PM	Na	589.594	25815	10.000	mg/L	
Standard5	09/20/2017	07:29:52 PM	Na	589.594	52025	20.000	mg/L	
Standard6	09/20/2017	07:33:43 PM	Na	589.594	106279	40.000	mg/L	0.9999

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117997**
Client ID: **ICV** Batch ID: **R117997** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10091.720	500	10000	0	101	90	110				
Iron	10252.423	20	10000	0	103	90	110				
Magnesium	10262.747	100	10000	0	103	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117997**
Client ID: **ZZZZZZ** Batch ID: **R117997** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	175.440	500	200.0	0	87.7	80	120				
Iron	22.656	20	20.00	0	113	80	120				
Magnesium	115.623	100	100.0	0	116	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117997**
Client ID: **CCV** Batch ID: **R117997** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10469.356	500	10000	0	105	90	110				
Iron	10489.661	20	10000	0	105	90	110				
Magnesium	10703.690	100	10000	0	107	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **117997**
Client ID: **CCV** Batch ID: **R117997** TestNo: **EPA 200.7** Analysis Date: **9/19/2017** SeqNo: **2769856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10736.937	500	10000	0	107	90	110				
Iron	10521.482	20	10000	0	105	90	110				
Magnesium	10711.280	100	10000	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ZZZZZZ**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	275.093	500	200.0	0	138	70	130				S
Iron	22.136	20	20.00	0	111	70	130				
Magnesium	114.834	100	100.0	0	115	70	130				

Ca on LLCCV1 is biased high however, samples for this analyte are greater than the regular CCV which passed QC criteria.

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

9/25/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ICV**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9635.917	500	10000	0	96.4	90	110				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **CCV**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9780.597	500	10000	0	97.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ICB**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.726	500									
Iron	2.916	20									
Magnesium	-0.687635	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **CCB**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	34.988	500									
Iron	2.716	20									
Magnesium	-1.817598	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **CCB**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.182	500									
Iron	1.364	20									
Magnesium	-3.719249	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ICB**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-324.990056	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **CCB**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-421.115974	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ICSA**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533070.003	50	500000	0	107	80	120				
Calcium	566717.178	500	500000	0	113	80	120				
Iron	184470.647	20	200000	0	92.2	80	120				
Magnesium	532159.307	100	500000	0	106	80	120				

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ICSAB**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548376.418	50	500000	0	110	80	120				
Calcium	579444.041	500	500000	0	116	80	120				
Iron	190384.075	20	200000	0	95.2	80	120				
Magnesium	548160.800	100	500000	0	110	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ICSA**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	536829.286	50	500000	0	107	80	120				
Calcium	591478.024	500	500000	0	118	80	120				
Iron	187377.035	20	200000	0	93.7	80	120				
Magnesium	544210.400	100	500000	0	109	80	120				

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ICSAB**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	529221.398	50	500000	0	106	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ICSAB**	Batch ID: **R117997**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	580975.952	500	500000	0	116	80	120				
Iron	185392.700	20	200000	0	92.7	80	120				
Magnesium	534663.045	100	500000	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ICSA**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-337.941987	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ICSAB**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9637.286	500	10000	0	96.4	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ICSA**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-433.241112	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ICSAB**	Batch ID: **R118019**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9716.196	500	10000	0	97.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170919B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0008	100.08	65-125	PASS
Standard2	ICAL	1	1.075	107.48	65-125	PASS
Standard3	ICAL	1	1.034	103.38	65-125	PASS
Standard4	ICAL	1	1.039	103.9	65-125	PASS
Standard5	ICAL	1	1.021	102.06	65-125	PASS
Standard6	ICAL	1	0.99	98.53	65-125	PASS
Standard7	ICAL	1	0.98	98.33	65-125	PASS
ICV	ICV	1	0.99	99.12	65-125	PASS
ICB	ICB	1	1.0081	100.81	65-125	PASS
LLICV	CCV1	1	1.013	101.33	65-125	PASS
LLICV	CCV1	1	1.0063	100.63	65-125	PASS
ICSA1	ICSA	1	0.85	84.83	65-125	PASS
ICSAB1	ICSAB	1	0.82	81.91	65-125	PASS
CCV1	CCV	1	0.98	97.99	65-125	PASS
CCB1	CCB	1	0.97	97.34	65-125	PASS
MB-63751	MBLK	1	0.98	97.62	65-125	PASS
LCS1-63751	LCS	1	0.91	90.93	65-125	PASS
N025788-001B	SAMP	1	0.9	89.86	65-125	PASS
N025788-001B	SAMP	5	0.94	93.92	65-125	PASS
N025788-001B-PS	PS	1	0.92	91.67	65-125	PASS
N025788-001B-MS	MS	1	0.93	93.22	65-125	PASS
N025788-001B-MSD	MSD	1	0.94	93.96	65-125	PASS
N025788-002B	SAMP	1	0.9	90.16	65-125	PASS
CCV2	CCV	1	1.026	102.56	65-125	PASS
CCB2	CCB	1	1.042	104.24	65-125	PASS
LLCCV1	CCV2	1	1.042	104.21	65-125	PASS
ICSA2	ICSA	1	0.89	89.28	65-125	PASS
ICSAB2	ICSAB	1	0.84	84.06	65-125	PASS
ICSAB3	ICSAB	1	0.85	84.58	65-125	PASS

INTERNAL STANDARD: 170920C

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1.00	100	65-125	PASS
Standard1	ICAL	1	1.00	99.64	65-125	PASS
Standard2	ICAL	1	1.00	99.60	65-125	PASS
Standard3	ICAL	1	0.98	98.40	65-125	PASS
Standard4	ICAL	1	0.98	98.11	65-125	PASS
Standard5	ICAL	1	0.97	97.45	65-125	PASS
Standard6	ICAL	1	0.96	96.11	65-125	PASS
ICV	ICV	1	1.00	99.95	65-125	PASS
ICB	ICB	1	1.01	100.50	65-125	PASS
ICSA1	ICSA	1	1.00	99.69	65-125	PASS
ICSAB1	ICSAB	1	1.00	99.68	65-125	PASS
MB-63751	MBLK	1	1.02	101.57	65-125	PASS
LCS2-63751	LCS	1	1.08	108.07	65-125	PASS
N925788-001B	SAMP	1	1.03	102.51	65-125	PASS
N925788-002B	SAMP	1	1.01	100.73	65-125	PASS
N925788-001B	SAMP	50	1.01	101.44	65-125	PASS
N025788-002B	SAMP	50	1.01	101.36	65-125	PASS
N025788-002B	SAMP	250	1.02	102.09	65-125	PASS
N025788-002B-PS	PS	50	1.02	101.64	65-125	PASS
N025788-002B-MS2	MS	50	1.01	101.18	65-125	PASS
N025788-002B-MSD2	MSD	50	1.02	101.49	65-125	PASS
CCV1	CCV	1	1.01	101.24	65-125	PASS
CCB1	CCB	1	1.03	103.40	65-125	PASS
ICSA2	ICSA	1	1.02	102.32	65-125	PASS
ICSAB2	ICSAB	1	1.02	101.56	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025788
Test Method: EPA 200.7
Analysis Date: 9/19/2017

Matrix: Groundwater
Batch No.: 63751

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025788-001B DT 5X	Calcium	ug/L	157378.4	PASS	165232.2	4.75%	10
N025788-001B DT 5X	Iron	ug/L	0	NA	0		10
N025788-001B DT 5X	Magnesium	ug/L	36976.69	PASS	34480.49	7.24%	10

Note: NA - Not applicable

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N025788
Test Method: EPA 200.7
Analysis Date: 9/20/2017

Matrix: Groundwater
Batch No.: 63751

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025788-002B DT 250X	Sodium	ug/L	1405753	PASS	1447234	2.87%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N025788-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **117997**
Client ID: **ZZZZZZ**	Batch ID: **63751**	TestNo: **EPA 200.7**		Analysis Date: **9/19/2017**	SeqNo: **2769852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	180632.489	500	10000	165200	154	80	120				S
Iron	104.157	20	100.0	0	104	80	120				
Magnesium	44964.842	100	10000	34480	105	80	120				

Sample ID **N025788-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **118019**
Client ID: **ZZZZZZ**	Batch ID: **63751**	TestNo: **EPA 200.7**		Analysis Date: **9/20/2017**	SeqNo: **2770836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1481139.999	25000	20000	1447000	170	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020	0.00125	0.00005062	**0.00016**	**0.0025**
Al	237.312	0.0272	0.0288	0.0288	0.0267	0.0269	0.0277	0.0276	0.025	0.00085451	**0.00269**	**0.050**
As	188.983	0.0054	0.0049	0.0037	0.0044	0.0060	0.0041	0.0048	0.005	0.00075065	**0.00236**	**0.010**
B	249.679	0.0735	0.0561	0.0463	0.0445	0.0396	0.0464	0.0398	0.05	0.01193786	**0.03752**	**0.10**
Ba	233.529	0.0007	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.000625	0.00003047	**0.00010**	**0.0025**
Be	313.104	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.00004386	**0.00014**	**0.0010**
Ca	227.546	0.0967	0.1086	0.0893	0.0864	0.0826	0.0978	0.0988	0.1	0.00880307	**0.02767**	**0.20**
Cd	214.437	0.0006	0.0006	0.0007	0.0006	0.0007	0.0006	0.0006	0.000313	0.00003910	**0.00012**	**0.0025**
Co	228.614	0.0011	0.0011	0.0010	0.0010	0.0009	0.0010	0.0011	0.00125	0.00005473	**0.00017**	**0.0025**
Cr	267.719	0.0004	0.0003	0.0004	0.0004	0.0004	0.0003	0.0004	0.0005	0.00004860	**0.00015**	**0.0010**
Cu	324.753	0.0013	0.0015	0.0015	0.0022	0.0022	0.0016	0.0015	0.0025	0.00034907	**0.00110**	**0.0050**
Fe	273.953	0.0115	0.0117	0.0112	0.0102	0.0105	0.0114	0.0114	0.01	0.00057502	**0.00181**	**0.020**
Mg	279.079	0.0227	0.0231	0.0204	0.0225	0.0221	0.0222	0.0250	0.025	0.00138863	**0.00436**	**0.10**
Mn	257.607	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	0.00125	0.00004429	**0.00014**	**0.010**
Mo	202.03	0.0031	0.0032	0.0031	0.0030	0.0026	0.0029	0.0029	0.0025	0.00018274	**0.00057**	**0.0050**
Ni	231.604	0.0019	0.0020	0.0020	0.0022	0.0022	0.0021	0.0021	0.0025	0.00012429	**0.00039**	**0.0050**
Pb	220.351	0.0049	0.0049	0.0048	0.0044	0.0048	0.0048	0.0050	0.005	0.00018831	**0.00059**	**0.010**
Sb	206.836	0.0035	0.0038	0.0020	0.0034	0.0033	0.0032	0.0046	0.005	0.00076686	**0.00241**	**0.010**
Se	196.025	0.0017	0.0033	0.0025	0.0025	0.0015	0.0034	0.0025	0.005	0.00070697	**0.00222**	**0.010**
Sn	189.927	0.0051	0.0048	0.0052	0.0051	0.0044	0.0045	0.0050	0.005	0.00031282	**0.00098**	**0.010**
Ti	334.943	0.0011	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.00125	0.00005159	**0.00016**	**0.010**
Tl	190.794	0.0067	0.0060	0.0064	0.0047	0.0062	0.0067	0.0062	0.0075	0.00070505	**0.00222**	**0.015**
V	292.404	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.00125	0.00006264	**0.00020**	**0.0025**
Zn	206.201	0.0024	0.0026	0.0024	0.0024	0.0024	0.0024	0.0033	0.0025	0.00034911	**0.00110**	**0.010**

LOD/PQL Verification 2016

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 4/1/2016, 4/4/2016
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	MDL	PQL	PQL VER	% REC	LOD	LOD VER
Ag	0.00016	0.0025	0.00223	89	0.0005	0.00080
Al	0.00269	0.050	0.05320	106	0.01	0.02090
As	0.00236	0.010	0.00834	83	0.0075	0.00617
B	0.03752	0.10	0.13977	140	0.05	0.05058
Ba	0.00010	0.0025	0.00265	106	0.00025	0.00104
Be	0.00014	0.0010	0.00106	106	0.0005	0.00046
Ca	0.02767	0.20	0.17684	88	0.1	0.08140
Cd	0.00012	0.0025	0.00262	105	0.00025	0.00104
Co	0.00017	0.0025	0.00263	105	0.0005	0.00101
Cr	0.00015	0.0010	0.00122	122	0.0005	0.00046
Cu	0.00110	0.0050	0.00436	87	0.0025	0.00144
Fe	0.00181	0.020	0.01970	99	0.005	0.00643
Mg	0.00436	0.10	0.09828	98	0.01	0.04118
Mn	0.00014	0.010	0.01016	102	0.0005	0.00426
Mo	0.00057	0.0050	0.00540	108	0.001	0.00241
Ni	0.00039	0.0050	0.00462	92	0.001	0.00156
Pb	0.00059	0.010	0.01026	103	0.001	0.00406
Sb	0.00241	0.010	0.00830	83	0.005	0.00305
Se	0.00222	0.010	0.01297	130	0.005	0.00721
Sn	0.00098	0.010	0.01092	109	0.0025	0.00442
Ti	0.00016	0.010	0.00996	100	0.0005	0.00384
Tl	0.00222	0.015	0.01485	99	0.005	0.00610
V	0.00020	0.0025	0.00246	98	0.0005	0.00089
Zn	0.00110	0.010	0.01092	109	0.0025	0.00412

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 3010A
Date of Analysis: 2/21/2017
Instrument Name: ICP2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: mg/L

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	%RSD	MDL	PQL
Potassium	0.15443	0.16201	0.14301	0.16141	0.16124	0.12965	0.14652	0.01215	0.15118	0.1000	8.0	0.03815	0.5
Sodium	0.11445	0.11459	0.11678	0.11286	0.11394	0.09515	0.10066	0.00835	0.10978	0.1000	7.6	0.02621	0.5
Strontium	0.02939	0.03046	0.0307	0.02962	0.03209	0.02708	0.02772	0.00174	0.02958	0.0250	5.9	0.00545	0.05

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7 **Matrix:** Water
Date of Analysis: 2/21/2017 **Units:** mg/L
Instrument Name: ICP2
Analyst: MI

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Sodium	0.02621	0.10	0.08408	0.5	0.52080	104.2
Potassium	0.03815	0.10	0.13587	0.5	0.48231	96.5
Strontium	0.00545	0.02	0.02459	0.05	0.06052	121.0

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63702
ASSET #: N025788

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/11/2017

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X					
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.		X				
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

Cr is over-linear range at N025788-002B. For dilution.
~~with confirmation for sample N025788-001~~

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 9/25/2017 Date: —

2nd Level Reviewer 9/25/2017 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63702
ASSET #: N025788

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 9/12/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X					
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X					
4. % RSD calculated from 3 injections?	X					
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X					
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X					
7. Are ICSA and AB within ± 20% of expected value?	X					
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X					
9. For CCV, all analytes within ± 10% of expected value?	X					
10. Calibration blank after ICVand CCV analysis.	X					
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X					
Sample Information						
13. All samples are within linear dynamic range.	X					
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X					
15. Are all samples analyzed/digested within hold time.	X					
16. Dilution test performed and within ± 10% of undiluted sample.	X					
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X					
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X					
23. Method blank values are below the PQL .	X					
24. LCS compounds within control limits.	X					
25. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			
27. Runlog complete and included in package.	X					
28. Digestion log complete and included in package (if applicable)	X					
29. All sample raw data present in package.	X					
Preliminary Report						
30. Does the raw data match the preliminary report?	X					
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
32. Are special instructions met?	X					

Comments:

For Cr dilution only.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 9/25/2017 Date: —

2nd Level Reviewer 9/25/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N025788-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 4.518 * 1 * (25/25)

Chromium , ug/L = 4.518

Reporting results in two significant figures,

Chromium , ug/L = 4.5

% RSD SUMMARY

PERCENT RSD SUMMARY: 170911A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.096	9.79	15	PASS	0.11	12.5	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	2.62	15	PASS	0.53	4.19	15	PASS
Std3-5/50 ppb	ICAL	1	5.068	1.045	15	PASS	5.099	0.91	15	PASS
Std4-10/100 ppb	ICAL	1	9.93	0.58	15	PASS	10.17	1.26	15	PASS
Std5-20/200 ppb	ICAL	1	20.25	1.37	15	PASS	20.6	0.52	15	PASS
Std6-40/400 ppb	ICAL	1	39.46	0.83	15	PASS	40.21	1	15	PASS
Std7-100/1000 ppb	ICAL	1	98.65	0.48	15	PASS	100.42	0.37	15	PASS
Std8-200/2000 ppb	ICAL	1	200.76	1.34	15	PASS	199.68	1.27	15	PASS
ICV	ICV	1	10.58	2.037	15	PASS	104.43	1.91	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.0022	5.25	20	PASS	0.53	7.58	20	PASS
ICSA1	ICSA	1	0.12	6.5	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.49	0.74	15	PASS	16.5	1.19	15	PASS
MB-63702	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-63702	LCS	1	9.94	1.58	15	PASS	101.82	2.52	15	PASS
N025755-001C	SAMP	1	475.57	1.17	15	PASS	5.85	1.77	15	PASS
N025755-002D	SAMP	1	0.44	0.16	15	PASS	4.47	1.18	15	PASS
N025755-002D	SAMP	5	0.09	10.73	15	PASS	1.058	1.082	15	PASS
N025755-002D-PS	PS	1	8.88	0.57	15	PASS	89.69	0.49	15	PASS
N025755-002D-MS	MS	1	8.76	1.49	15	PASS	89.37	0.95	15	PASS
CCV1	CCV	1	19.67	0.29	15	PASS	20.059	1.072	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N025755-002D-MSD	MSD	1	8.86	1.17	15	PASS	88.81	1.11	15	PASS
N025788-001B	SAMP	1	4.52	1.49	15	PASS	68.18	0.92	15	PASS
N025788-002B	SAMP	1	484.64	1.41	15	PASS	9.53	1.31	15	PASS
CCV2	CCV	1	19.9	1.38	15	PASS	20.45	0.59	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.95	1.1	20	PASS	0.51	5.36	20	PASS
ICSA2	ICSA	1	0.12	17.46	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.28	1.26	15	PASS	16.47	1.92	15	PASS

PERCENT RSD SUMMARY: 170912A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	5.82	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.54	3.46	15	PASS
Std3-5/50 ppb	ICAL	1	5.04	1.12	15	PASS
Std4-10/100 ppb	ICAL	1	10.23	1.27	15	PASS
Std5-20/200 ppb	ICAL	1	20.43	0.98	15	PASS
Std6-40/400 ppb	ICAL	1	39.87	1.49	15	PASS
Std7-100/1000 ppb	ICAL	1	99.94	0.45	15	PASS
Std8-200/2000 ppb	ICAL	1	205.29	1.88	15	PASS
ICV	ICV	1	10.43	1.66	15	PASS
ICB	ICB	1	0.016	53.74	15	<PQL
LLICV	CCV1	1	1.015	2.083	20	PASS
ICSA1	ICSA	1	0.14	2.78	15	PASS
ICSAB1	ICSAB	1	19.77	1.11	15	PASS
LLICV	CCV1	1	1.0028	2.99	20	PASS
CCV1	CCV	1	20.5	1.94	15	PASS
CCB1	CCB	1	0.0062	140.38	15	<PQL
CCV2	CCV	1	20.58	2.095	15	PASS
CCB2	CCB	1	0.00032	1843.24	15	<PQL
CCV3	CCV	1	20.24	0.44	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL
N025788-002B	SAMP	5	108.57	0.55	15	PASS
CCV4	CCV	1	20.43	2.036	15	PASS
CCB4	CCB	1	0.013	46.85	15	<PQL
LLCCV1	CCV2	1	1.021	1.89	20	PASS
ICSA2	ICSA	1	0.12	7.69	15	PASS
ICSAB2	ICSAB	1	19.54	1.41	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 170911A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0911001.D	RINSE	RINSE	1	09/11/17 6:32 PM
A0911002.D	Cal Blank	IBLK	1	09/11/17 6:37 PM
A0911003.D	Std1-0.1/1 ppb	ICAL	1	09/11/17 6:43 PM
A0911004.D	Std2-0.5/5 ppb	ICAL	1	09/11/17 6:48 PM
A0911005.D	Std3-5/50 ppb	ICAL	1	09/11/17 6:54 PM
A0911006.D	Std4-10/100 ppb	ICAL	1	09/11/17 6:59 PM
A0911007.D	Std5-20/200 ppb	ICAL	1	09/11/17 7:05 PM
A0911008.D	Std6-40/400 ppb	ICAL	1	09/11/17 7:10 PM
A0911009.D	Std7-100/1000 ppb	ICAL	1	09/11/17 7:16 PM
A0911010.D	Std8-200/2000 ppb	ICAL	1	09/11/17 7:21 PM
A0911011.D	ICV	ICV	1	09/11/17 7:27 PM
A0911012.D	ICB	ICB	1	09/11/17 7:32 PM
A0911013.D	LLICV	CCV1	1	09/11/17 7:38 PM
A0911014.D	ICSA1	ICSA	1	09/11/17 7:43 PM
A0911015.D	ICSAB1	ICSAB	1	09/11/17 7:49 PM
A0911016.D	MB-63702	MBLK	1	09/11/17 7:54 PM
A0911017.D	LCS-63702	LCS	1	09/11/17 8:00 PM
A0911018.D	N025726-001B	SAMP	1	09/11/17 8:06 PM
A0911019.D	N025726-002B	SAMP	1	09/11/17 8:11 PM
A0911020.D	N025726-003B	SAMP	1	09/11/17 8:17 PM
A0911021.D	N025755-001C	SAMP	1	09/11/17 8:22 PM
A0911022.D	N025755-002D	SAMP	1	09/11/17 8:28 PM
A0911023.D	N025755-002D	SAMP	5	09/11/17 8:33 PM
A0911024.D	N025755-002D-PS	PS	1	09/11/17 8:39 PM
A0911025.D	N025755-002D-MS	MS	1	09/11/17 8:44 PM
A0911026.D	CCV1	CCV	1	09/11/17 8:50 PM
A0911027.D	CCB1	CCB	1	09/11/17 8:55 PM
A0911028.D	N025755-002D-MSD	MSD	1	09/11/17 9:01 PM
A0911029.D	N025788-001B	SAMP	1	09/11/17 9:06 PM
A0911030.D	N025788-002B	SAMP	1	09/11/17 9:12 PM
A0911031.D	N025790-004A	SAMP	1	09/11/17 9:18 PM
A0911032.D	N025790-005A	SAMP	1	09/11/17 9:23 PM
A0911033.D	N025726-002B	SAMP	100	09/11/17 9:29 PM
A0911034.D	N025726-003B	SAMP	1	09/11/17 9:34 PM
A0911035.D	N025726-003B	SAMP	100	09/11/17 9:40 PM
A0911036.D	CCV2	CCV	1	09/11/17 9:45 PM
A0911037.D	CCB2	CCB	1	09/11/17 9:51 PM
A0911038.D	LLCCV1	CCV2	1	09/11/17 9:56 PM
A0911039.D	ICSA2	ICSA	1	09/11/17 10:02 PM
A0911040.D	ICSAB2	ICSAB	1	09/11/17 10:07 PM

INJECTION LOG: 170912A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0912001.D	RINSE	RINSE	1	09/12/17 2:31 PM
A0912002.D	Cal Blank	IBLK	1	09/12/17 2:37 PM
A0912003.D	Std1-0.1/1 ppb	ICAL	1	09/12/17 2:42 PM
A0912004.D	Std2-0.5/5 ppb	ICAL	1	09/12/17 2:47 PM
A0912005.D	Std3-5/50 ppb	ICAL	1	09/12/17 2:53 PM
A0912006.D	Std4-10/100 ppb	ICAL	1	09/12/17 2:59 PM
A0912007.D	Std5-20/200 ppb	ICAL	1	09/12/17 3:04 PM
A0912008.D	Std6-40/400 ppb	ICAL	1	09/12/17 3:10 PM
A0912009.D	Std7-100/1000 ppb	ICAL	1	09/12/17 3:16 PM
A0912010.D	Std8-200/2000 ppb	ICAL	1	09/12/17 3:21 PM
A0912011.D	ICV	ICV	1	09/12/17 3:27 PM
A0912012.D	ICB	ICB	1	09/12/17 3:32 PM
A0912013.D	LLICV	CCV1	1	09/12/17 3:38 PM
A0912014.D	ICSA1	ICSA	1	09/12/17 3:43 PM
A0912015.D	ICSAB1	ICSAB	1	09/12/17 3:49 PM
A0912016.D	LLICV	CCV1	1	09/12/17 3:54 PM
A0912017.D	MB-63703	MBLK	1	09/12/17 4:01 PM
A0912018.D	LCS-63703	LCS	1	09/12/17 4:07 PM
A0912019.D	N025765-001B	SAMP	1	09/12/17 4:12 PM
A0912020.D	N025765-001B	SAMP	5	09/12/17 4:18 PM
A0912021.D	N025765-001B-PS	PS	1	09/12/17 4:23 PM
A0912022.D	N025765-001B-MS	MS	1	09/12/17 4:29 PM
A0912023.D	N025765-001B-MSD	MSD	1	09/12/17 4:34 PM
A0912024.D	N025766-001B	SAMP	1	09/12/17 4:40 PM
A0912025.D	N025766-002B	SAMP	1	09/12/17 4:45 PM
A0912026.D	N025766-003B	SAMP	1	09/12/17 4:51 PM
A0912027.D	CCV1	CCV	1	09/12/17 4:56 PM
A0912028.D	CCB1	CCB	1	09/12/17 5:02 PM
A0912029.D	N025766-005B	SAMP	1	09/12/17 5:07 PM
A0912030.D	N025767-001B	SAMP	1	09/12/17 5:13 PM
A0912031.D	N025768-001B	SAMP	1	09/12/17 5:18 PM
A0912032.D	N025768-002B	SAMP	1	09/12/17 5:24 PM
A0912033.D	N025789-001B	SAMP	1	09/12/17 5:29 PM
A0912034.D	N025790-001B	SAMP	1	09/12/17 5:35 PM
A0912035.D	N025790-002B	SAMP	1	09/12/17 5:40 PM
A0912036.D	N025790-003B	SAMP	1	09/12/17 5:46 PM
A0912037.D	N025790-006B	SAMP	1	09/12/17 5:51 PM
A0912038.D	N025805-001A	SAMP	1	09/12/17 5:57 PM
A0912039.D	CCV2	CCV	1	09/12/17 6:03 PM
A0912040.D	CCB2	CCB	1	09/12/17 6:08 PM
A0912041.D	N025765-001B-MS	MS	1	09/12/17 6:14 PM
A0912042.D	N025790-001B	SAMP	5	09/12/17 6:19 PM

INJECTION LOG: 170912A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0912043.D	MB-63731	MBLK	1	09/12/17 6:25 PM
A0912044.D	LCS-63731	LCS	1	09/12/17 6:31 PM
A0912045.D	N025515-003A	SAMP	1	09/12/17 6:36 PM
A0912046.D	N025515-006A	SAMP	1	09/12/17 6:41 PM
A0912047.D	N025515-006A	SAMP	5	09/12/17 6:47 PM
A0912048.D	N025515-006A-PS	PS	1	09/12/17 6:52 PM
A0912049.D	N025515-006A-MS	MS	1	09/12/17 6:58 PM
A0912050.D	N025515-006A-MSD	MSD	1	09/12/17 7:03 PM
A0912051.D	CCV3	CCV	1	09/12/17 7:09 PM
A0912052.D	CCB3	CCB	1	09/12/17 7:14 PM
A0912053.D	N025788-002B	SAMP	5	09/12/17 7:20 PM
A0912054.D	CCV4	CCV	1	09/12/17 7:25 PM
A0912055.D	CCB4	CCB	1	09/12/17 7:31 PM
A0912056.D	LLCCV1	CCV2	1	09/12/17 7:37 PM
A0912057.D	ICSA2	ICSA	1	09/12/17 7:42 PM
A0912058.D	ICSAB2	ICSAB	1	09/12/17 7:48 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/8/2017 7:56:08 A**
Prep End Date: **9/8/2017 12:00:00 P**
Prep Batch **63702** Prep Code: **200.8_PR**

Reviewed/ Date: 9/25/2017
Initials/ Date: 9/25/2017
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-17**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63702	Aqueous		25	☐	0	0	25	1.000		
MB-63702	Aqueous		25	☐	0	0	25	1.000		
N025726-001B	Surface Water	<2	25	☐	0	0	25	1.000		
N025726-002B	Surface Water	<2	25	☐	0	0	25	1.000		
N025726-003B	Surface Water	<2	25	☐	0	0	25	1.000		
N025755-001C	Water	<2	25	☐	0	0	25	1.000		
N025755-002D	Water	<2	25	☐	0	0	25	1.000		
N025755-002D-MS	Water	<2	25	☐	0	0	25	1.000		
N025755-002D-MS	Water	<2	25	☐	0	0	25	1.000		
N025788-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N025788-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N025790-004A	Groundwater	<2	25	☐	0	0	25	1.000		
N025790-005A	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Sep 2017 09:24:40 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	102454.00	0.00	
24 Mg	889392.00	0.00	
25 Mg	118643.00	0.00	
26 Mg	138793.00	0.00	
59 Co	679870.00	0.00	
115 In	1219270.00	0.00	
206 Pb	344550.00	0.00	
207 Pb	301437.00	0.00	
208 Pb	742126.00	0.00	

RSD (%)

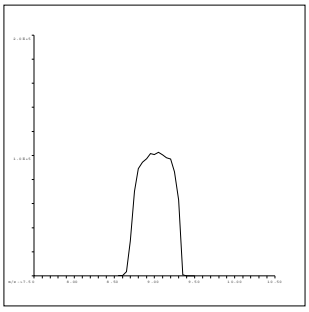
Element	Actual	Required	Flag
9 Be	0.91	5.00	
24 Mg	4.12	5.00	
25 Mg	3.74	5.00	
26 Mg	4.12	5.00	
59 Co	0.77	5.00	
115 In	0.91	5.00	
206 Pb	1.56	5.00	
207 Pb	0.96	5.00	
208 Pb	1.56	5.00	

Ion Ratio

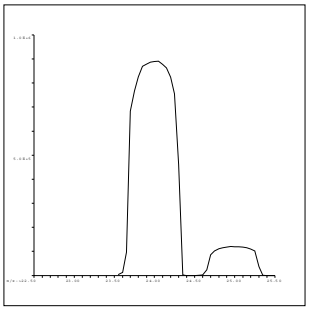
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

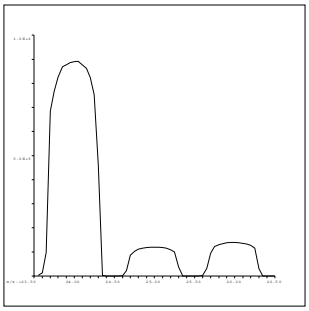
Element	Actual	Required	Flag



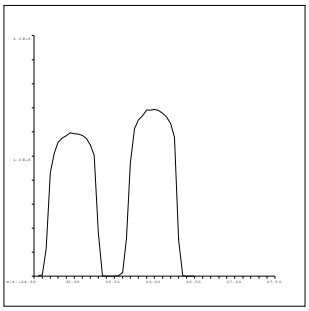
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



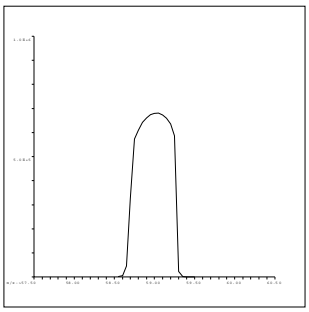
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



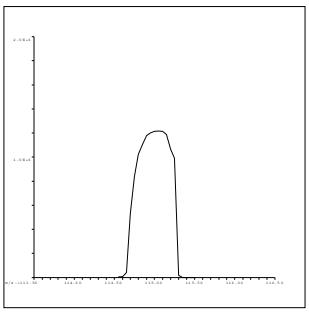
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



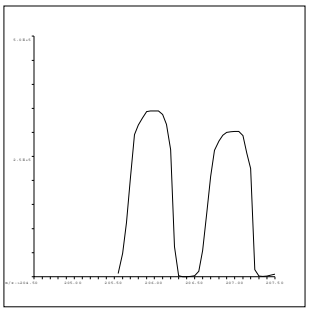
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



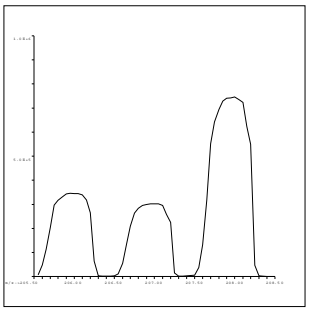
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



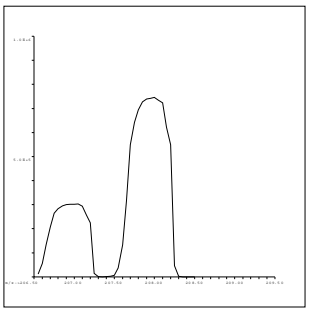
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 12 Sep 2017 10:14:39 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	68414.50	0.00	
24	Mg	301970.00	0.00	
25	Mg	40744.90	0.00	
26	Mg	46842.80	0.00	
59	Co	504766.00	0.00	
115	In	986597.00	0.00	
206	Pb	288090.00	0.00	
207	Pb	250341.00	0.00	
208	Pb	618787.00	0.00	

RSD (%)

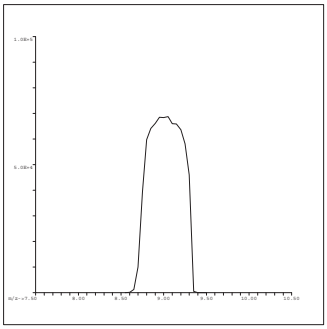
Element		Actual	Required	Flag
9	Be	0.80	5.00	
24	Mg	0.14	5.00	
25	Mg	3.49	5.00	
26	Mg	2.69	5.00	
59	Co	0.73	5.00	
115	In	0.81	5.00	
206	Pb	1.22	5.00	
207	Pb	1.01	5.00	
208	Pb	1.14	5.00	

Ion Ratio

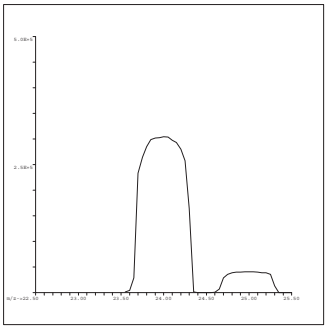
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

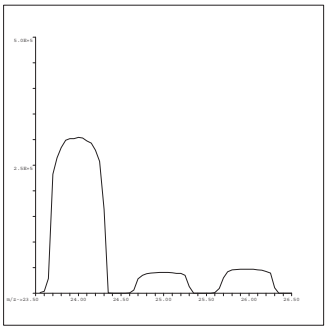
Element	Actual	Required	Flag



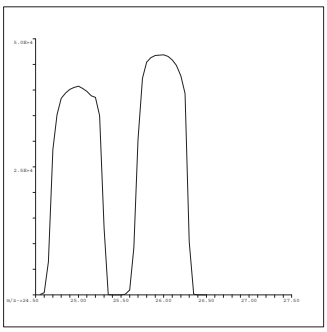
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



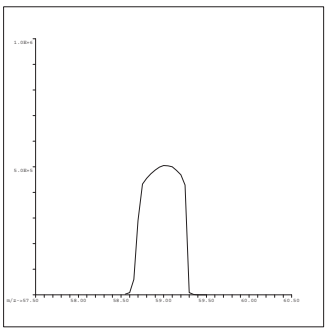
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



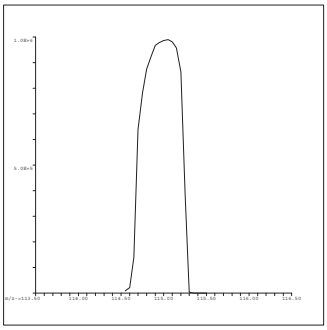
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



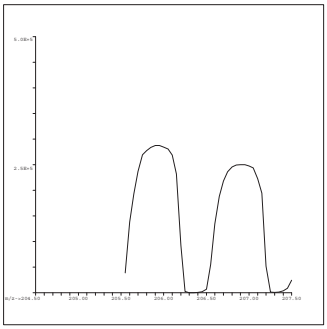
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



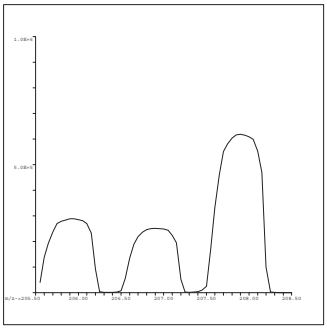
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



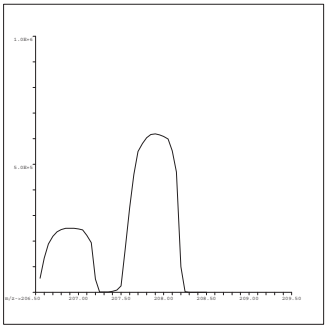
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.90
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.90
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 170911A

Instrument ID: ICPMS-02

Analyte	Data File	A0911002.D	A0911003.D	A0911004.D	A0911005.D	A0911006.D	A0911007.D	A0911008.D	A0911009.D	A0911010.D	
	Acq. Date-Time	09/11/2017 06:37 PM	09/11/2017 06:43 PM	09/11/2017 06:48 PM	09/11/2017 06:54 PM	09/11/2017 06:59 PM	09/11/2017 07:05 PM	09/11/2017 07:10 PM	09/11/2017 07:16 PM	09/11/2017 07:21 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	101885.8		99722.2	97610.1	97146.2	94728.4	93982.7	93269.9	90531.7	
55 Mn [2]	CPS	178		2385.8	21171.3	41840.6	82497	159620	395417.9	762874.1	1.0000
52 Cr [2]	CPS	794.2		4753.9	42123.6	81413.1	161135.6	310850.7	770128.4	1520302.2	1.0000
72 Ge (ISTD) [2]	CPS	81674	81436.1	79749	78834.3	78133.4	76432.1	75565.9	75367.2	72280.1	
75 As [2]	CPS	44.4	149.8	533.3	5009.7	9949.8	19479.7	37930.6	93829.8	182027.8	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

As is not a required analyte

9/25/2017

INITIAL CALIBRATION SUMMARY: 170912A

Instrument ID: ICPMS-02

Analyte	Data File	A0912002.D	A0912004.D	A0912005.D	A0912006.D	A0912007.D	A0912008.D	A0912009.D	A0912010.D	
	Acq. Date-Time	09/12/2017 02:37 PM	09/12/2017 02:47 PM	09/12/2017 02:53 PM	09/12/2017 02:59 PM	09/12/2017 03:04 PM	09/12/2017 03:10 PM	09/12/2017 03:16 PM	09/12/2017 03:21 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	86781.5	80679.2	88829.9	88572.1	88822.2	88860.5	87440.8	85993.2	
52 Cr [2]	CPS	497.6	4020.5	36988	74315.1	148405.6	289127.1	712603.6	1438700.4	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ICV**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	104.430	0.50	100.0	0	104	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ZZZZZZ**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.533	0.50	0.5000	0	107	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **CCV**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.059	0.50	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **CCV**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.448	0.50	20.00	0	102	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ZZZZZZ**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.509	0.50	0.5000	0	102	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **ICV**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.576	1.0	10.00	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **ZZZZZZ**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.002	1.0	1.000	0	100	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **CCV**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.670	1.0	20.00	0	98.3	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **CCV**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.896	1.0	20.00	0	99.5	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **ZZZZZZ**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.955	1.0	1.000	0	95.5	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV** SampType: **ICV** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **117829**
Client ID: **ICV** Batch ID: **R117829** TestNo: **EPA 200.8** Analysis Date: **9/12/2017** SeqNo: **2762092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.433	1.0	10.00	0	104	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **117829**
Client ID: **ZZZZZZ** Batch ID: **R117829** TestNo: **EPA 200.8** Analysis Date: **9/12/2017** SeqNo: **2762094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.015	1.0	1.000	0	102	80	120				

not used

Sample ID **LLICV** SampType: **CCV1** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **117829**
Client ID: **ZZZZZZ** Batch ID: **R117829** TestNo: **EPA 200.8** Analysis Date: **9/12/2017** SeqNo: **2762097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.003	1.0	1.000	0	100	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **117829**
Client ID: **CCV** Batch ID: **R117829** TestNo: **EPA 200.8** Analysis Date: **9/12/2017** SeqNo: **2762108**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.498	1.0	20.00	0	102	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **200.8DIS_Cr** Units: **µg/L** Prep Date: RunNo: **117829**
Client ID: **CCV** Batch ID: **R117829** TestNo: **EPA 200.8** Analysis Date: **9/12/2017** SeqNo: **2762120**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.581	1.0	20.00	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

9/25/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	CCV3	SampType:	CCV	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	CCV	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762132

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.243	1.0	20.00	0	101	90	110				

Sample ID	CCV4	SampType:	CCV	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	CCV	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762135

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.435	1.0	20.00	0	102	90	110				

Sample ID	LLCCV1	SampType:	CCV2	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	ZZZZZZ	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762137

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.021	1.0	1.000	0	102	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ICB**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **CCB**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **CCB**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **ICB**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **CCB**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **CCB**	Batch ID: **R117819**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117829**
Client ID: **ICB**	Batch ID: **R117829**	TestNo: **EPA 200.8**		Analysis Date: **9/12/2017**	SeqNo: **2762093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117829**
Client ID: **CCB**	Batch ID: **R117829**	TestNo: **EPA 200.8**		Analysis Date: **9/12/2017**	SeqNo: **2762109**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117829**
Client ID: **CCB**	Batch ID: **R117829**	TestNo: **EPA 200.8**		Analysis Date: **9/12/2017**	SeqNo: **2762121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117829**
Client ID: **CCB**	Batch ID: **R117829**	TestNo: **EPA 200.8**		Analysis Date: **9/12/2017**	SeqNo: **2762133**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117829**
Client ID: **CCB**	Batch ID: **R117829**	TestNo: **EPA 200.8**		Analysis Date: **9/12/2017**	SeqNo: **2762136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ICSA**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ICSAB**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	16.496	0.50	20.00	0	82.5	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ICSA**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **117820**
Client ID: **ICSAB**	Batch ID: **R117820**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761558**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	16.466	0.50	20.00	0	82.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	ICSA1	SampType:	ICSA	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117819
Client ID:	ICSA	Batch ID:	R117819	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761502

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.123	1.0									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117819
Client ID:	ICSAB	Batch ID:	R117819	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761503

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.485	1.0	20.00	0	97.4	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117819
Client ID:	ICSA	Batch ID:	R117819	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761527

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.117	1.0									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117819
Client ID:	ICSAB	Batch ID:	R117819	TestNo:	EPA 200.8			Analysis Date:	9/11/2017	SeqNo:	2761528

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.280	1.0	20.00	0	96.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	ICSA1	SampType:	ICSA	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	ICSA	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762095

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.137	1.0									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	ICSAB	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762096

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.772	1.0	20.00	0	98.9	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	ICSA	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762138

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.124	1.0									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	117829
Client ID:	ICSAB	Batch ID:	R117829	TestNo:	EPA 200.8			Analysis Date:	9/12/2017	SeqNo:	2762139

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.542	1.0	20.00	0	97.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 170911A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	101885.8	101885.8	100	PASS	70-125	81674	81674	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	100455.7	101885.8	98.6	PASS	70-125	81436.1	81674	99.71	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	99722.2	101885.8	97.88	PASS	70-125	79749	81674	97.64	PASS	70-125
Std3-5/50 ppb	ICAL	1	97610.1	101885.8	95.8	PASS	70-125	78834.3	81674	96.52	PASS	70-125
Std4-10/100 ppb	ICAL	1	97146.2	101885.8	95.35	PASS	70-125	78133.4	81674	95.66	PASS	70-125
Std5-20/200 ppb	ICAL	1	94728.4	101885.8	92.98	PASS	70-125	76432.1	81674	93.58	PASS	70-125
Std6-40/400 ppb	ICAL	1	93982.7	101885.8	92.24	PASS	70-125	75565.9	81674	92.52	PASS	70-125
Std7-100/1000 ppb	ICAL	1	93269.9	101885.8	91.54	PASS	70-125	75367.2	81674	92.28	PASS	70-125
Std8-200/2000 ppb	ICAL	1	90531.7	101885.8	88.86	PASS	70-125	72280.1	81674	88.5	PASS	70-125
ICV	ICV	1	76669.7	101885.8	75.25	PASS	70-125	62659.3	81674	76.72	PASS	70-125
ICB	ICB	1	90235.7	101885.8	88.57	PASS	70-125	74546.7	81674	91.27	PASS	70-125
LLICV	CCV1	1	80188.3	101885.8	78.7	PASS	70-125	64447.6	81674	78.91	PASS	70-125
ICSA1	ICSA	1	87367.5	101885.8	85.75	PASS	70-125	68923.6	81674	84.39	PASS	70-125
ICSAB1	ICSAB	1	95273.2	101885.8	93.51	PASS	70-125	73947.3	81674	90.54	PASS	70-125
MB-63702	MBLK	1	99120.2	101885.8	97.29	PASS	70-125	80934.5	81674	99.095	PASS	70-125
LCS-63702	LCS	1	87476.6	101885.8	85.86	PASS	70-125	72391.5	81674	88.63	PASS	70-125
N025755-001C	SAMP	1	92244.4	101885.8	90.54	PASS	70-125	68919.9	81674	84.38	PASS	70-125
N025755-002D	SAMP	1	95255.2	101885.8	93.49	PASS	70-125	70929.6	81674	86.84	PASS	70-125
N025755-002D	SAMP	5	96027.5	101885.8	94.25	PASS	70-125	75301.3	81674	92.2	PASS	70-125
N025755-002D-PS	PS	1	91736	101885.8	90.038	PASS	70-125	69489.3	81674	85.081	PASS	70-125
N025755-002D-MS	MS	1	101829.3	101885.8	99.94	PASS	70-125	76217.5	81674	93.32	PASS	70-125
CCV1	CCV	1	104878	101885.8	102.94	PASS	70-125	82007.9	81674	100.41	PASS	70-125
CCB1	CCB	1	101513.1	101885.8	99.63	PASS	70-125	81508.6	81674	99.8	PASS	70-125
N025755-002D-MSD	MSD	1	95490.4	101885.8	93.72	PASS	70-125	71427.1	81674	87.45	PASS	70-125
N025788-001B	SAMP	1	104064	101885.8	102.14	PASS	70-125	77910	81674	95.39	PASS	70-125
N025788-002B	SAMP	1	100291.6	101885.8	98.44	PASS	70-125	74141.5	81674	90.78	PASS	70-125
CCV2	CCV	1	99754.9	101885.8	97.91	PASS	70-125	79792.3	81674	97.7	PASS	70-125
CCB2	CCB	1	96498.1	101885.8	94.71	PASS	70-125	77969.6	81674	95.46	PASS	70-125
LLCCV1	CCV2	1	94729.1	101885.8	92.98	PASS	70-125	77205.7	81674	94.53	PASS	70-125
ICSA2	ICSA	1	92507.9	101885.8	90.8	PASS	70-125	71937.2	81674	88.078	PASS	70-125
ICSAB2	ICSAB	1	97765.6	101885.8	95.96	PASS	70-125	75476.1	81674	92.41	PASS	70-125

reported Cr & Mn only

9/25/2017

INTERNAL STANDARD: 170912A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	86781.5	86781.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	89717.9	86781.5	103.38	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	80679.2	86781.5	92.97	PASS	70-125
Std3-5/50 ppb	ICAL	1	88829.9	86781.5	102.36	PASS	70-125
Std4-10/100 ppb	ICAL	1	88572.1	86781.5	102.06	PASS	70-125
Std5-20/200 ppb	ICAL	1	88822.2	86781.5	102.35	PASS	70-125
Std6-40/400 ppb	ICAL	1	88860.5	86781.5	102.4	PASS	70-125
Std7-100/1000 ppb	ICAL	1	87440.8	86781.5	100.76	PASS	70-125
Std8-200/2000 ppb	ICAL	1	85993.2	86781.5	99.092	PASS	70-125
ICV	ICV	1	81581.4	86781.5	94.008	PASS	70-125
ICB	ICB	1	82604.1	86781.5	95.19	PASS	70-125
LLICV	CCV1	1	83088.7	86781.5	95.74	PASS	70-125
ICSA1	ICSA	1	85366.9	86781.5	98.37	PASS	70-125
ICSAB1	ICSAB	1	89499.2	86781.5	103.13	PASS	70-125
LLICV	CCV1	1	91776.1	86781.5	105.76	PASS	70-125
CCV1	CCV	1	76412.6	86781.5	88.052	PASS	70-125
CCB1	CCB	1	72575.7	86781.5	83.63	PASS	70-125
CCV2	CCV	1	73845.8	86781.5	85.094	PASS	70-125
CCB2	CCB	1	70532.6	86781.5	81.28	PASS	70-125
CCV3	CCV	1	73970.6	86781.5	85.24	PASS	70-125
CCB3	CCB	1	69741.5	86781.5	80.36	PASS	70-125
N025788-002B	SAMP	5	64970.2	86781.5	74.87	PASS	70-125
CCV4	CCV	1	71370.7	86781.5	82.24	PASS	70-125
CCB4	CCB	1	63121.3	86781.5	72.74	PASS	70-125
LLCCV1	CCV2	1	68558.8	86781.5	79.002	PASS	70-125
ICSA2	ICSA	1	69083	86781.5	79.61	PASS	70-125
ICSAB2	ICSAB	1	74448.3	86781.5	85.79	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N025788
Test Method: EPA 200.8
Analysis Date: 9/11/2017

Matrix: Groundwater
Batch No.: 63702

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr and Mn. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N025755-002D DT 5X	Chromium	ug/L	0.451074	NA	0.437481	3.11%	10
N025755-002D DT 5X	Manganese	ug/L	5.290204	NA	4.471776	18.30%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N025755-002D-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **117820**
Client ID: **ZZZZZZ** Batch ID: **63702** TestNo: **EPA 200.8** Analysis Date: **9/11/2017** SeqNo: **2761542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	89.692	0.50	100.0	4.472	85.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N025755-002D-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **117819**
Client ID: **ZZZZZZ**	Batch ID: **63702**	TestNo: **EPA 200.8**		Analysis Date: **9/11/2017**	SeqNo: **2761512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.880	1.0	10.00	0.4375	84.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R117754
ASSET #: N025788

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 9/8/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?		X				
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?	X					
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:
N025788-001A (218.6) = 9.0 ppb ; N025788-001B (200.8) = 4.5 ppb MS confirmation done; recovery within criteria.
N025788-002A was reanalyzed and reported in IC-07_170913A.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 9/15/2017

2nd Level Reviewer 9/22/2017 Date: —

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R117838
ASSET #: N025788

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 9/13/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X					
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?	X					
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X					
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X					
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:
For N025788-002A.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba Date: 9/15/2017

2nd Level Reviewer: 9/22/2017 Date: ~

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N025788-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 9.0499 * 1$$

$$Cr^{+6}, \mu g/L = 9.05$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 9.0}$$

rba 9/15/2017

ANALYSIS RUN LOG

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported

jrba 9/7/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 9/7/2017

INJECTION LOG: 170908A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/08/17 8:48 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/08/17 8:59 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/08/17 9:08 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/08/17 9:18 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/08/17 9:27 AM	Reported
15	MB-R117754	MBLK	1	Hexavalent Chromium	09/08/17 9:37 AM	Reported
16	LCS-R117754	LCS	1	Hexavalent Chromium	09/08/17 9:46 AM	Reported
17	N025788-002A	SAMP	100	Hexavalent Chromium	09/08/17 10:13 AM	Not Reported
18	N025788-002AMS	MS	100	Hexavalent Chromium	09/08/17 10:24 AM	Reported
19	N025788-002AMSD	MSD	100	Hexavalent Chromium	09/08/17 10:34 AM	Reported
20	N025788-001A	SAMP	1	Hexavalent Chromium	09/08/17 10:43 AM	Reported
21	N025788-001AMS	MS	1	Hexavalent Chromium	09/08/17 10:53 AM	Not Reported
22	N025789-001A	SAMP	1	Hexavalent Chromium	09/08/17 11:02 AM	Reported
23	N025790-001A	SAMP	50	Hexavalent Chromium	09/08/17 11:11 AM	Reported
24	N025790-002A	SAMP	1	Hexavalent Chromium	09/08/17 11:21 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/08/17 11:30 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/08/17 11:40 AM	Reported
27	N025790-003A	SAMP	1	Hexavalent Chromium	09/08/17 11:49 AM	Reported
28	N025790-006A	SAMP	1	Hexavalent Chromium	09/08/17 11:59 AM	Reported
29	N025790-006ADUP	DUP	1	Hexavalent Chromium	09/08/17 12:08 PM	Reported
30	N025790-007A	SAMP	1	Hexavalent Chromium	09/08/17 12:18 PM	Reported
31	N025788-001AMS	MS	1	Hexavalent Chromium	09/08/17 12:27 PM	Reported
32	CCV-3	CCV	1	Hexavalent Chromium	09/08/17 12:45 PM	Reported
33	CCB-3	CCB	1	Hexavalent Chromium	09/08/17 12:56 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170908A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**08/Sep/17 13:54:26**
No. of Injections:	**36**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/08/2017 08:48	Finished	BLANK
11	BLANK	2	1000	Unknown		09/08/2017 08:59	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/08/2017 09:08	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/08/2017 09:18	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/08/2017 09:27	Finished	CCB R170815A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/08/2017 09:37	Finished	MB R170815A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/08/2017 09:46	Finished	LCS, IWST-170622D
17	N025788-002A,SAMF	9	1000	Unknown		09/08/2017 10:13	Finished	SAMP,0.1>10mL
18	N025788-002AMS,MS	10	1000	Unknown		09/08/2017 10:24	Finished	MS (5ppb), IWST-170622D,0.1
19	N025788-002AMSD,M	11	1000	Unknown		09/08/2017 10:34	Finished	MSD (5ppb), IWST-170622D,0
20	N025788-001A,SAMF	12	1000	Unknown		09/08/2017 10:43	Finished	SAMP,10mL
21	N025788-001AMS,MS	13	1000	Unknown		09/08/2017 10:53	Finished	MS (1ppb), IWST-170622D,10
22	N025789-001A,SAMF	14	1000	Unknown		09/08/2017 11:02	Finished	SAMP,10mL
23	N025790-001A,SAMF	15	1000	Unknown		09/08/2017 11:11	Finished	SAMP,0.2>10mL
24	N025790-002A,SAMF	16	1000	Unknown		09/08/2017 11:21	Finished	SAMP,10mL
25	CCV-2,CCV1,1,	17	1000	Unknown		09/08/2017 11:30	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	18	1000	Unknown		09/08/2017 11:40	Finished	CCB R170815A
27	N025790-003A,SAMF	19	1000	Unknown		09/08/2017 11:49	Finished	SAMP,10mL
28	N025790-006A,SAMF	20	1000	Unknown		09/08/2017 11:59	Finished	SAMP,10mL
29	N025790-006ADUP,D	21	1000	Unknown		09/08/2017 12:08	Finished	DUP,10mL
30	N025790-007A,SAMF	22	1000	Unknown		09/08/2017 12:18	Finished	SAMP,10mL
31	N025788-001AMS,MS	23	1000	Unknown		09/08/2017 12:27	Finished	MS (5ppb), IWST-170622D,10
32	CCV-3,CCV,1,	25	1000	Unknown		09/08/2017 12:45	Finished	CCV @5ppb, IWST-170622C
33	CCB-3,CCB,1,	26	1000	Unknown		09/08/2017 12:56	Finished	CCB R170815A
34	SHUTDOWN	27	1000	Unknown		09/08/2017 13:31	Finished	
35	Eluent: R170906C	28	1000	Unknown		n.a.	Finished	Eluent
36	PCR: R170907A	29	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170913A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/13/17 9:23 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/13/17 9:34 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/13/17 9:44 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/13/17 9:53 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/13/17 10:03 AM	Reported
15	MB-R117838	MBLK	1	Hexavalent Chromium	09/13/17 10:12 AM	Reported
16	LCS-R117838	LCS	1	Hexavalent Chromium	09/13/17 10:22 AM	Reported
17	N025871-001A	SAMP	1	Hexavalent Chromium	09/13/17 10:43 AM	Reported
18	N025871-001ADUP	DUP	1	Hexavalent Chromium	09/13/17 10:54 AM	Reported
19	N025871-001AMS	MS	1	Hexavalent Chromium	09/13/17 11:03 AM	Reported
20	N025871-001AMSD	MSD	1	Hexavalent Chromium	09/13/17 11:13 AM	Reported
21	CCV-2	CCV1	1	Hexavalent Chromium	09/13/17 11:22 AM	Reported
22	CCB-2	CCB	1	Hexavalent Chromium	09/13/17 11:32 AM	Reported
23	N025788-001A	SAMP	1	Hexavalent Chromium	09/13/17 11:49 AM	Not Reported
24	N025788-001AMS	MS	1	Hexavalent Chromium	09/13/17 12:00 PM	Not Reported
25	N025788-002A	SAMP	100	Hexavalent Chromium	09/13/17 12:10 PM	Reported
26	N025788-002AMS	MS	100	Hexavalent Chromium	09/13/17 12:20 PM	Reported
27	CCV-3	CCV	1	Hexavalent Chromium	09/13/17 1:07 PM	Reported
28	CCB-3	CCB	1	Hexavalent Chromium	09/13/17 1:18 PM	Reported
29	N025881-001A	SAMP	5	Hexavalent Chromium	09/13/17 2:15 PM	Reported
30	N025881-002A	SAMP	1	Hexavalent Chromium	09/13/17 2:26 PM	Reported
31	N025881-003A	SAMP	2	Hexavalent Chromium	09/13/17 2:35 PM	Reported
32	N025881-004A	SAMP	5	Hexavalent Chromium	09/13/17 2:45 PM	Reported
33	N025881-003A	SAMP	5	Hexavalent Chromium	09/13/17 2:59 PM	NotReported
34	N025881-005A	SAMP	200	Hexavalent Chromium	09/13/17 3:09 PM	Reported
35	N025881-006A	SAMP	1000	Hexavalent Chromium	09/13/17 3:19 PM	Reported
36	N025881-007A	SAMP	50	Hexavalent Chromium	09/13/17 3:28 PM	Reported
37	N025881-008A	SAMP	20	Hexavalent Chromium	09/13/17 3:38 PM	Reported
38	N025881-009A	SAMP	100	Hexavalent Chromium	09/13/17 3:47 PM	Reported
39	CCV-4	CCV1	1	Hexavalent Chromium	09/13/17 3:57 PM	Reported
40	CCB-4	CCB	1	Hexavalent Chromium	09/13/17 4:06 PM	Reported
41	N025881-010A	SAMP	1000	Hexavalent Chromium	09/13/17 4:16 PM	Reported
42	N025881-011A	SAMP	20	Hexavalent Chromium	09/13/17 4:25 PM	Reported

INJECTION LOG: 170913A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-5	CCV	1	Hexavalent Chromium	09/13/17 4:35 PM	Reported
44	CCB-5	CCB	1	Hexavalent Chromium	09/13/17 4:44 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170913A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**14/Sep/17 08:31:26**
No. of Injections:	**47**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/13/2017 09:23	Finished	BLANK
11	BLANK	2	1000	Unknown		09/13/2017 09:34	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/13/2017 09:44	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/13/2017 09:53	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/13/2017 10:03	Finished	CCB R170815A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/13/2017 10:12	Finished	MB R170815A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/13/2017 10:22	Finished	LCS, IWST-170622D
17	N025871-001A,SAMP	9	1000	Unknown		09/13/2017 10:43	Finished	SAMP,10mL
18	N025871-001ADUP,D	10	1000	Unknown		09/13/2017 10:54	Finished	DUP,10mL
19	N025871-001AMS,MS	11	1000	Unknown		09/13/2017 11:03	Finished	MS (1ppb), IWST-170622D,10
20	N025871-001AMSD,M	12	1000	Unknown		09/13/2017 11:13	Finished	MSD (1ppb), IWST-170622D,1(
21	CCV-2,CCV1,1,	13	1000	Unknown		09/13/2017 11:22	Finished	CCV @10ppb, IWST-170622C
22	CCB-2,CCB,1,	14	1000	Unknown		09/13/2017 11:32	Finished	CCB R170815A
23	N025788-001A,SAMP	16	1000	Unknown		09/13/2017 11:49	Finished	SAMP,10mL
24	N025788-001AMS,MS	17	1000	Unknown		09/13/2017 12:00	Finished	MS (5ppb), IWST-170622D,10
25	N025788-002A,SAMP	18	1000	Unknown		09/13/2017 12:10	Finished	SAMP,0.1>10mL
26	N025788-002AMS,MS	19	1000	Unknown		09/13/2017 12:20	Finished	MS (5ppb), IWST-170622D,0.1
27	CCV-3,CCV,1,	21	1000	Unknown		09/13/2017 13:07	Finished	CCV @5ppb, IWST-170622C
28	CCB-3,CCB,1,	22	1000	Unknown		09/13/2017 13:18	Finished	CCB R170815A
29	N025881-001A,SAMP	1	1000	Unknown		09/13/2017 14:15	Finished	SAMP,2>10mL
30	N025881-002A,SAMP	2	1000	Unknown		09/13/2017 14:26	Finished	SAMP,10mL
31	N025881-003A,SAMP	3	1000	Unknown		09/13/2017 14:35	Finished	SAMP,5>10mL
32	N025881-004A,SAMP	4	1000	Unknown		09/13/2017 14:45	Finished	SAMP,2>10mL
33	N025881-003A,SAMP	5	1000	Unknown		09/13/2017 14:59	Finished	SAMP,2>10mL
34	N025881-005A,SAMP	6	1000	Unknown		09/13/2017 15:09	Finished	SAMP,0.05>10mL
35	N025881-006A,SAMP	7	1000	Unknown		09/13/2017 15:19	Finished	SAMP,0.01>10mL
36	N025881-007A,SAMP	8	1000	Unknown		09/13/2017 15:28	Finished	SAMP,0.2>10mL
37	N025881-008A,SAMP	9	1000	Unknown		09/13/2017 15:38	Finished	SAMP,0.05>10mL
38	N025881-009A,SAMP	10	1000	Unknown		09/13/2017 15:47	Finished	SAMP,0.1>10mL
39	CCV-4,CCV1,1,	11	1000	Unknown		09/13/2017 15:57	Finished	CCV @10ppb, IWST-170622C
40	CCB-4,CCB,1,	12	1000	Unknown		09/13/2017 16:06	Finished	CCB R170815A
41	N025881-010A,SAMP	13	1000	Unknown		09/13/2017 16:16	Finished	SAMP,0.01>10mL
42	N025881-011A,SAMP	14	1000	Unknown		09/13/2017 16:25	Finished	SAMP,0.5>10mL
43	CCV-5,CCV,1,	15	1000	Unknown		09/13/2017 16:35	Finished	CCV @5ppb, IWST-170622C
44	CCB-5,CCB,1,	16	1000	Unknown		09/13/2017 16:44	Finished	CCB R170815A
45	SHUTDOWN	17	1000	Unknown		09/13/2017 16:54	Finished	
46	Eluent: R170913A	18	1000	Unknown		n.a.	Finished	Eluent
47	PCR: R170913B	19	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 9/8/17
Time Prepared: 0814 → 0930H
Prepared By: MSA

slope: 98.4%
pH 4: 3.98 @ 23.2°C
7: 6.95 @ 23.2°C
10: 10.03 @ 23.1°C
ws: 6.96 @ 23.8°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: R170906C / R170913A
NH4OH + NH4SO4 buffer: R170815A

6N NaOH: R170815A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025788-1A	9.24	9.39	~25mL	~25mL	+3 drops 6N NaOH	R170815A
2)	2A	9.31	-				
3)	N025789-1A	9.35	-				
4)	N025790-1A	9.34	-				
5)	2A	9.27	9.45			+2 "	
6)	3A	9.26	9.43			+2 "	
7)	4A	9.05	9.38			+6 "	
8)	5A	9.54	-				
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 9/12/17
Time Prepared: 1421H
Prepared By: MSA

Slope: 98.2%
pH 4: 3.98 @ 22.7°C
7: 6.98 @ 22.7°C
10: 10.04 @ 22.7°C
ws: 6.98 @ 23.8°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: R170908F
NH4OH + NH4SO4 buffer: R170815A / R170912A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N025805-1A	9.45	-	~25mL	~25mL		R170815A
2)	N025856-1A	7.15	9.31			+5mL R170912A	
3)	2A	7.34	9.35				
4)	3A	7.28	9.40				
5)	4A	7.35	9.39				
6)	5A	7.06	9.44				
7)	6A	7.41	9.55				
8)	7A	7.11	9.50				
9)	8A	7.16	9.42				1
10)	9A	7.25	9.35				
11)	10A	7.35	9.33				
12)	11A	7.16	9.38				
13)	12A	7.08	9.46				
14)	13A	7.04	9.42				
15)	14A	7.31	9.40				
	15A	7.12	9.31				

Logbook No. 13

jba 9/13/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/5/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2580	1.2987	2.5943	3.9068	5.1811	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST160817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ICV**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2758518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.943	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ZZZZZZ**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2758519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.191	0.20	0.2000	0	95.2	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **CCV**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.046	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ZZZZZZ**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.219	0.20	0.2000	0	110	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ZZZZZZ**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.022	0.20	10.00	0	100	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **CCV**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.994	0.20	5.000	0	99.9	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **ICV**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2762498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.943	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **ZZZZZZ**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2762499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.191	0.20	0.2000	0	95.2	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCV**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2762501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.005	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **ZZZZZZ**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2762502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.187	0.20	0.2000	0	93.7	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **ZZZZZZ**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2762510**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.041	0.20	10.00	0	100	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCV**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2764051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.041	0.20	5.000	0	101	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **ZZZZZZ**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2764053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.030	0.20	10.00	0	100	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCV**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2764055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **ICB**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2758520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **CCB**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **CCB**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117754**
Client ID: **CCB**	Batch ID: **R117754**	TestNo: **EPA 218.6**		Analysis Date: **9/8/2017**	SeqNo: **2758541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **ICB**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2762500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCB**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2762503**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCB**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2762511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCB**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2764052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **117838**
Client ID: **CCB**	Batch ID: **R117838**	TestNo: **EPA 218.6**		Analysis Date: **9/13/2017**	SeqNo: **2764054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **117838**
Client ID: **CCB** Batch ID: **R117838** TestNo: **EPA 218.6** Analysis Date: **9/13/2017** SeqNo: **2764056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/8/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.140	
CCV-2	4.131	
CCV-3	4.140	
Average	4.137	
Actual RT Window	4.057 - 4.217	
Applied RT Window	3.937 - 4.337	
MB-R117754	N.A.	N.A.
LCS-R117754	4.140	PASS
N025788-002A	4.156	PASS
N025788-002AMS	4.148	PASS
N025788-002AMSD	4.148	PASS
N025788-001A	4.081	PASS
N025788-001AMS	4.073	PASS
N025789-001A	4.131	PASS
N025790-001A	4.140	PASS
N025790-002A	4.131	PASS
N025790-003A	4.123	PASS
N025790-006A	4.115	PASS
N025790-006ADUP	4.115	PASS
N025790-007A	N.A.	N.A.
N025788-001AMS	4.073	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/13/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.123	
CCV-2	4.123	
CCV-3	4.123	
CCV-4	4.073	
CCV-5	4.106	
Average	4.110	
Actual RT Window	4.030 - 4.190	
Applied RT Window	3.910 - 4.310	
MB-R117838	N.A.	N.A.
LCS-R117838	4.123	PASS
N025871-001A	4.106	PASS
N025871-001ADUP	4.106	PASS
N025871-001AMS	4.106	PASS
N025871-001AMSD	4.106	PASS
N025788-001A	4.065	PASS
N025788-001AMS	4.065	PASS
N025788-002A	4.123	PASS
N025788-002AMS	4.123	PASS
N025881-001A	4.106	PASS
N025881-002A	N.A.	N.A.
N025881-003A	4.040	PASS
N025881-004A	4.048	PASS
N025881-003A	4.023	PASS
N025881-005A	4.023	PASS
N025881-006A	4.015	PASS
N025881-007A	4.015	PASS
N025881-008A	4.040	PASS
N025881-009A	4.056	PASS
N025881-010A	4.098	PASS
N025881-011A	4.098	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

INITIAL CALIBRATION



RAW DATA

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported

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9/12/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

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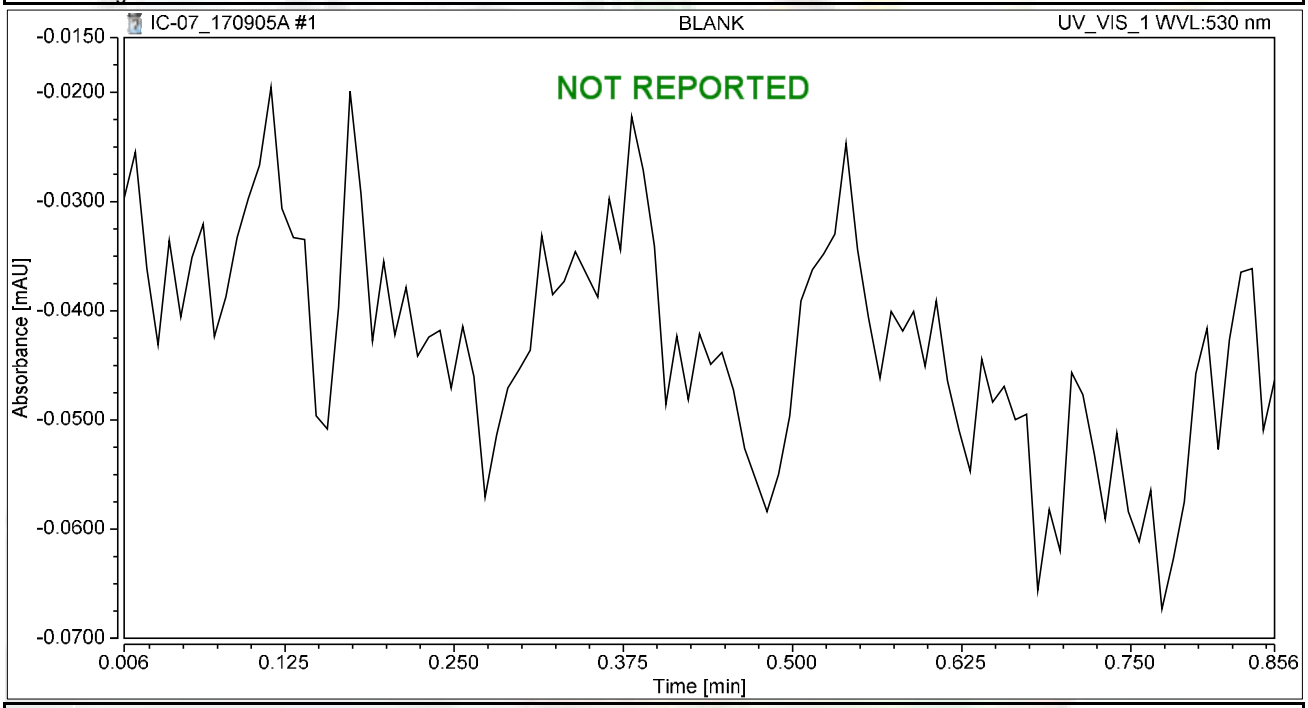
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.85**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 08:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

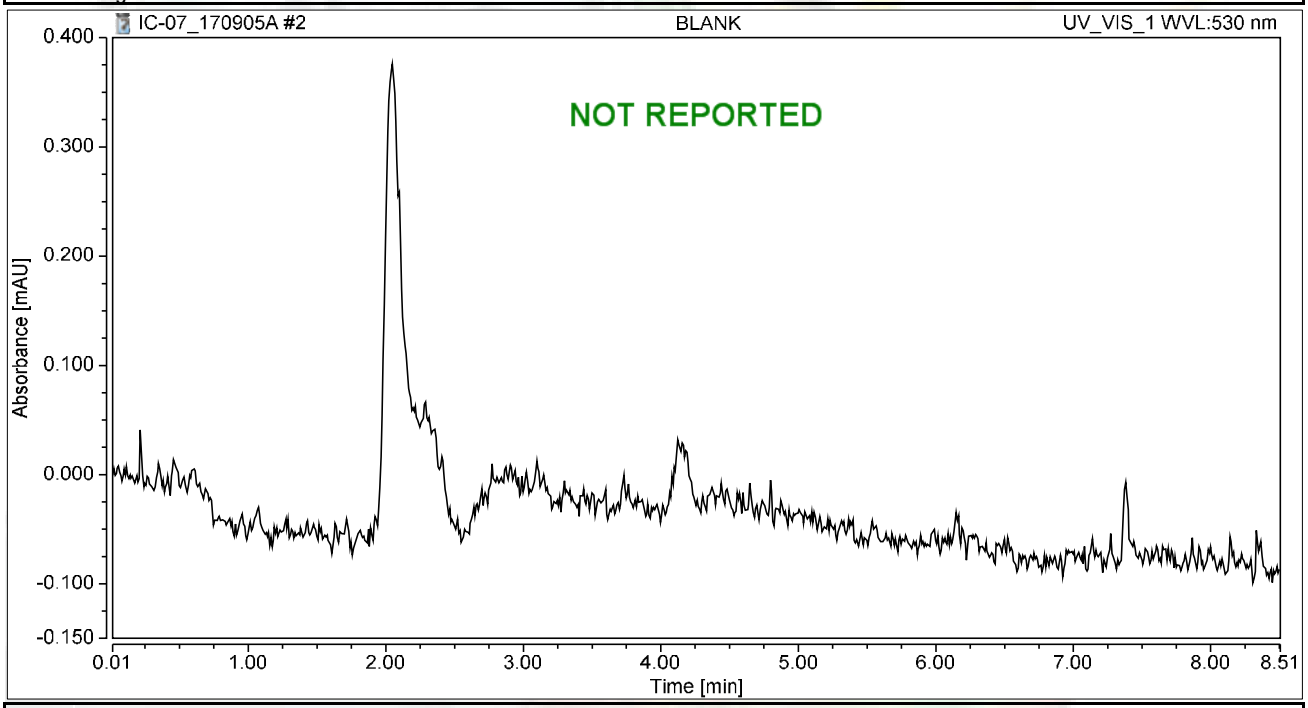
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

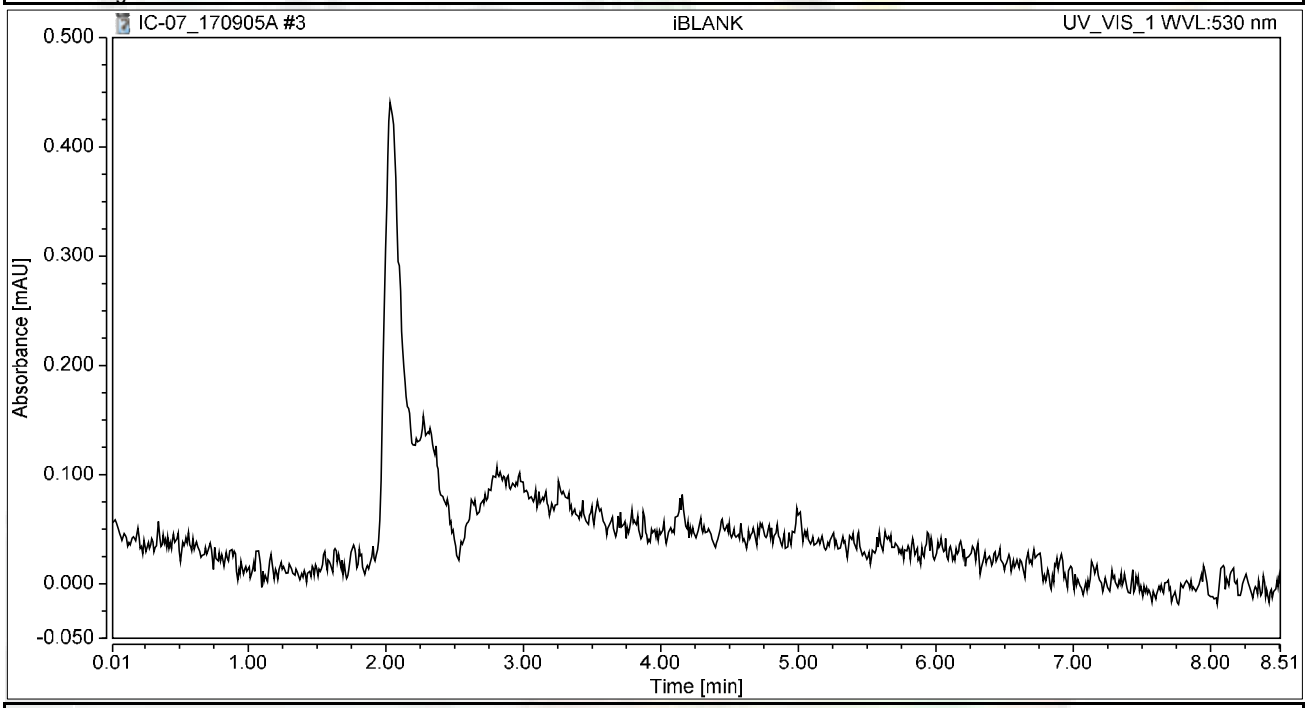
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

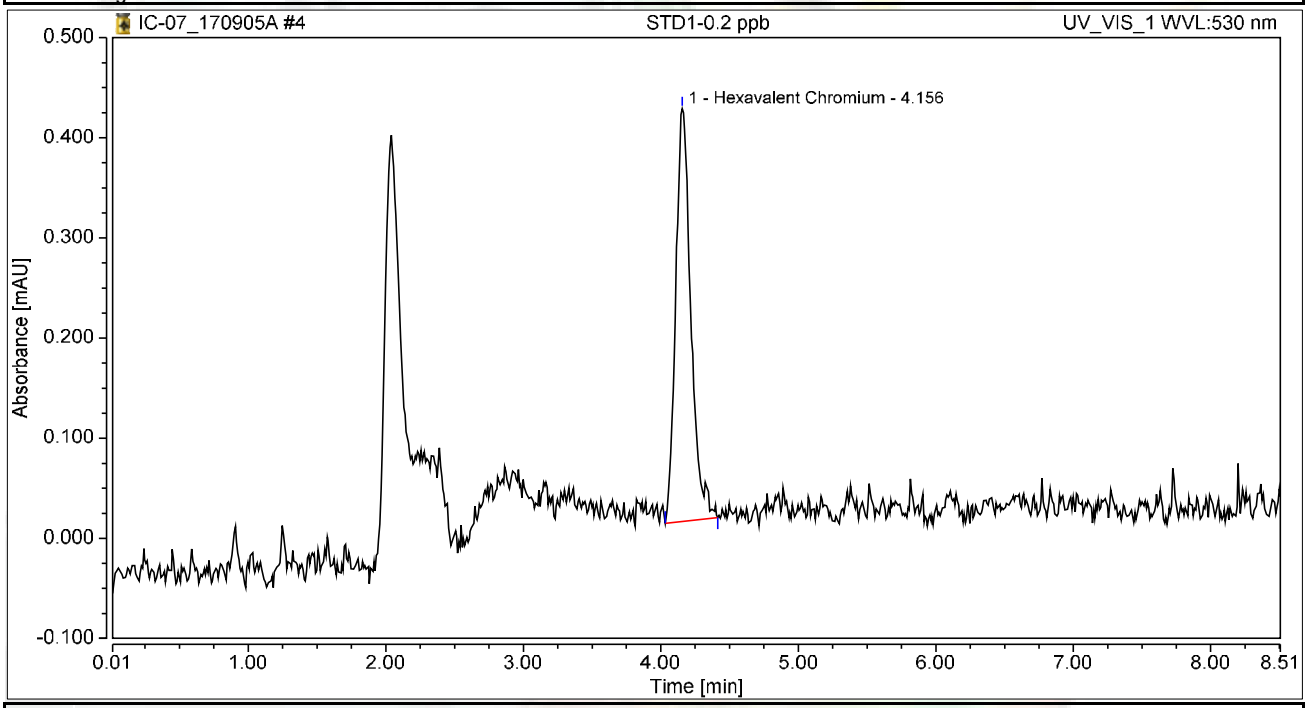
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

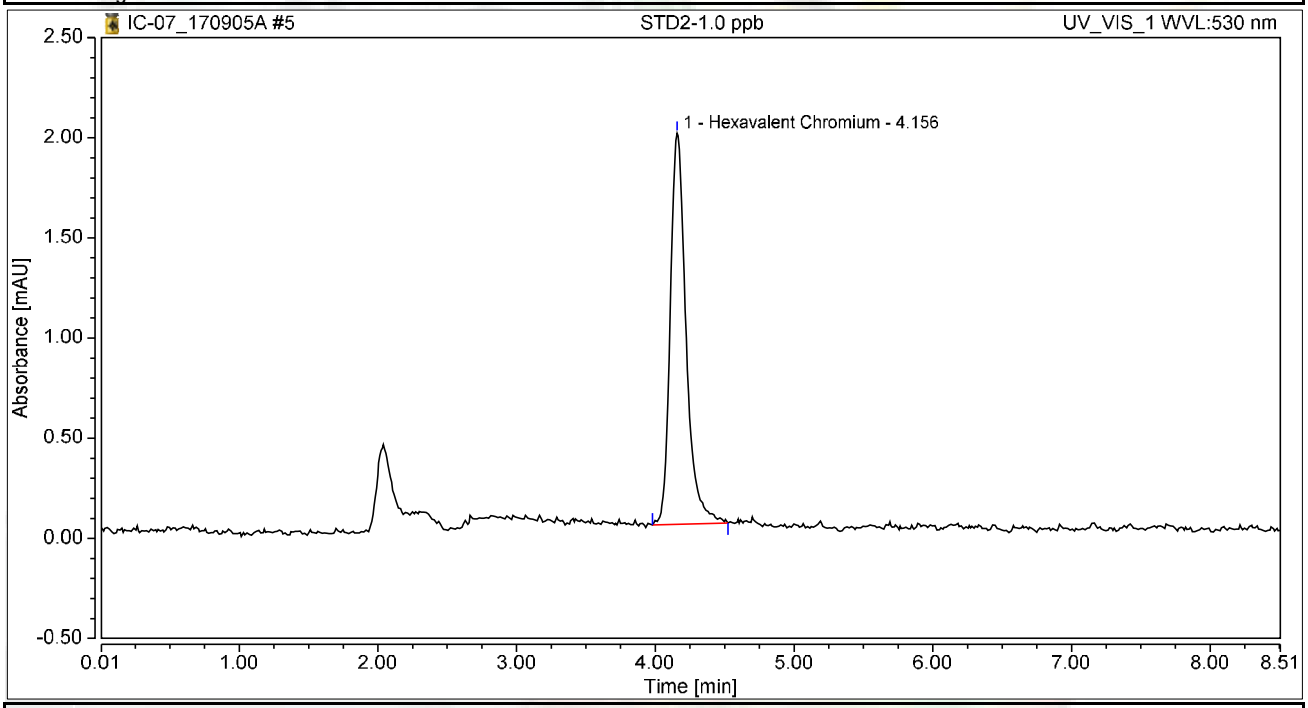
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.053	0.412	100.00	100.00	0.2029
Total:			**0.053**	**0.412**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

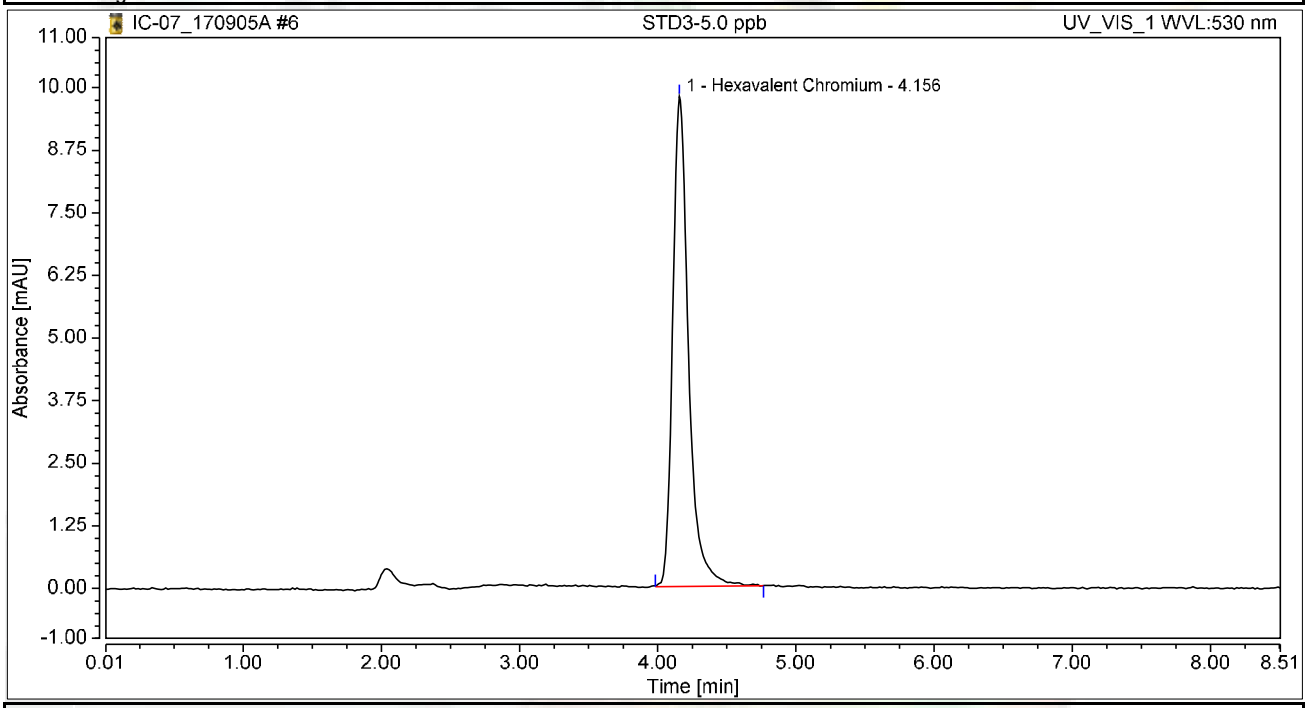
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.258	1.952	100.00	100.00	0.9942
Total:			**0.258**	**1.952**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

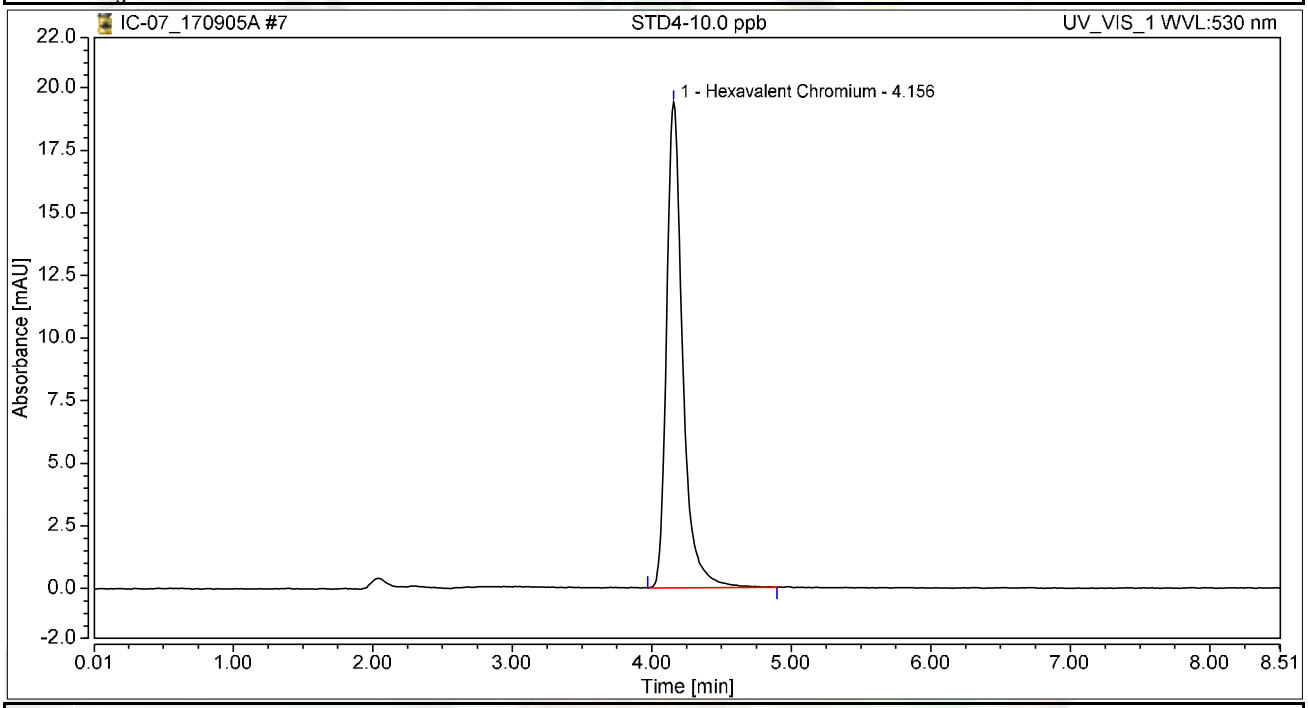
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.299	9.782	100.00	100.00	5.0039
Total:			**1.299**	**9.782**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

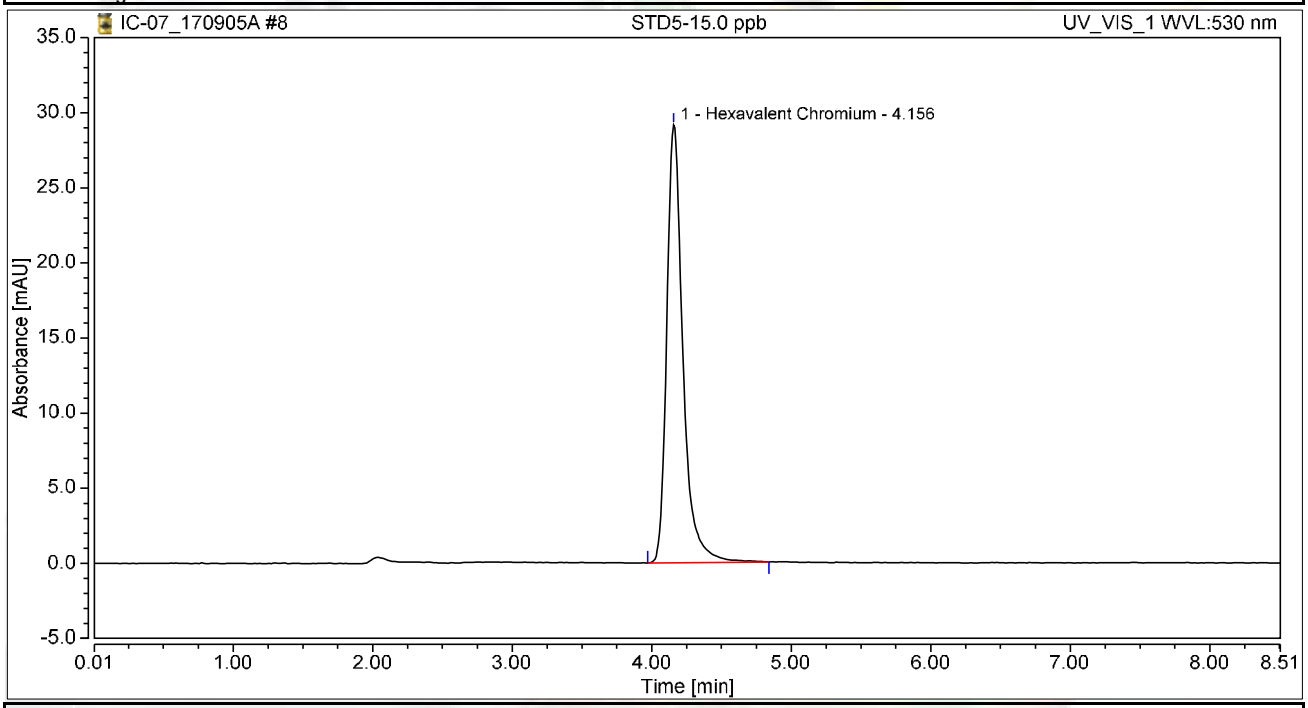
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	2.594	19.389	100.00	100.00	9.9955
Total:			**2.594**	**19.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

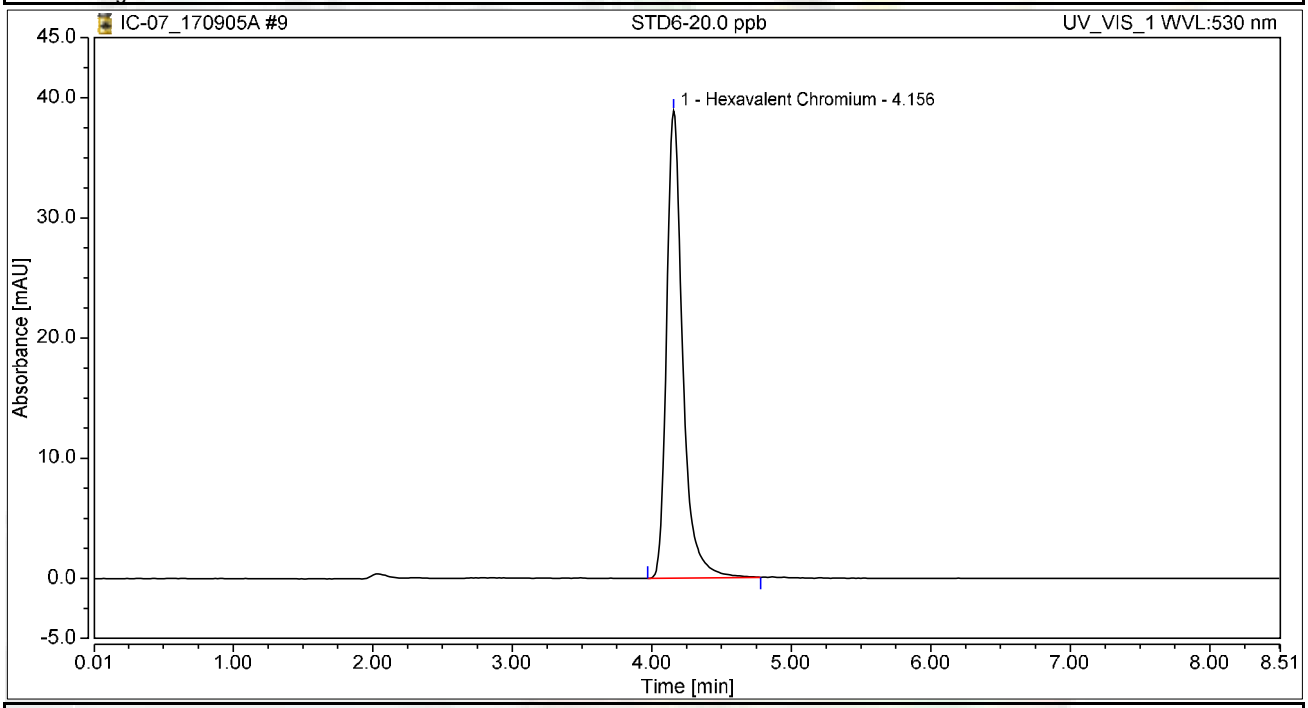
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	3.907	29.134	100.00	100.00	15.0524
Total:			**3.907**	**29.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:25**	*Sample Weight:*	**1.0000**

Chromatogram



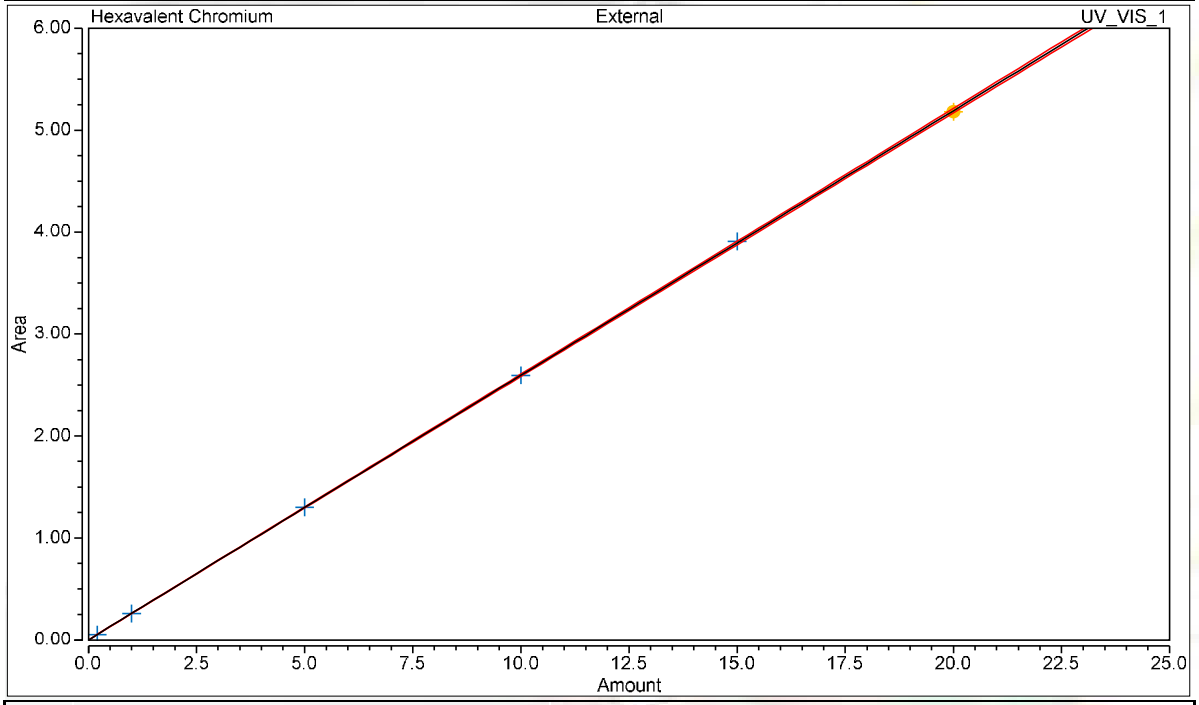
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	5.181	38.869	100.00	100.00	19.9622
Total:			**5.181**	**38.869**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

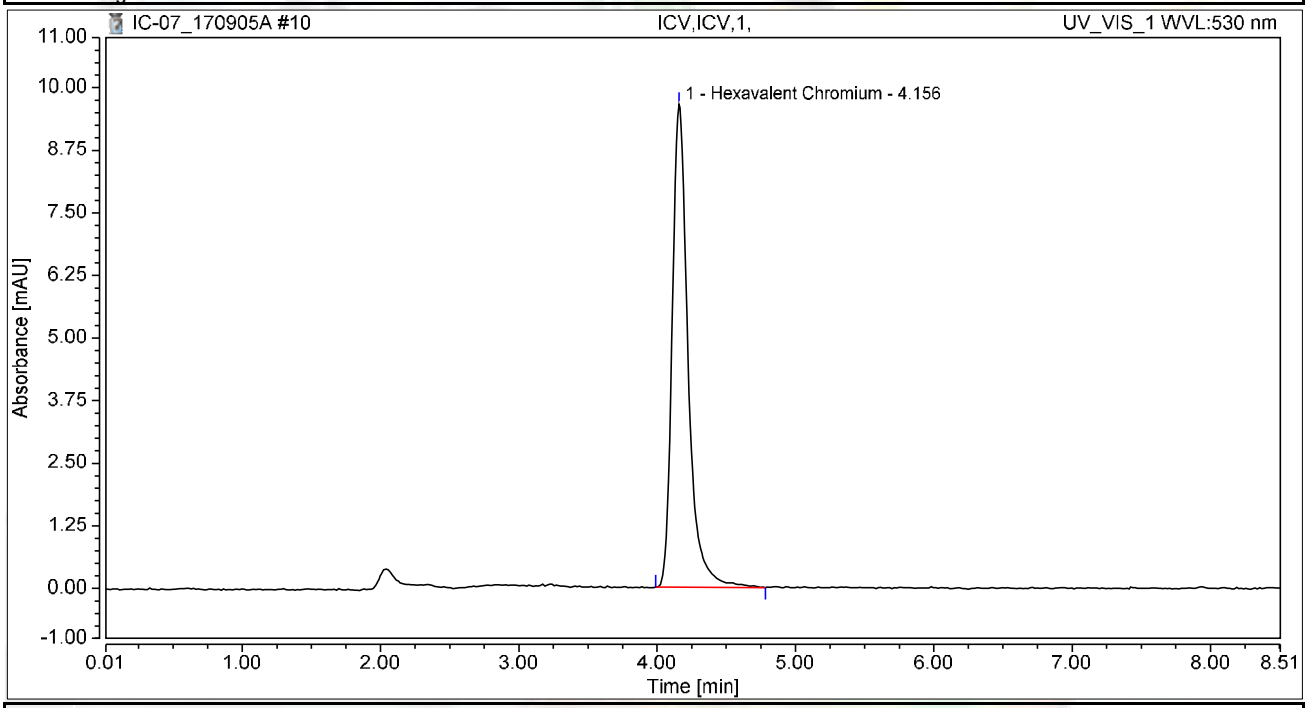
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.412
5	STD2-1.0 ppb	02	1.0000	0.2580	0.258	1.952
6	STD3-5.0 ppb	03	5.0000	1.2987	1.299	9.782
7	STD4-10.0 ppb	04	10.0000	2.5943	2.594	19.389
8	STD5-15.0 ppb	05	15.0000	3.9068	3.907	29.134
9	STD6-20.0 ppb	06	20.0000	5.1811	5.181	38.869

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

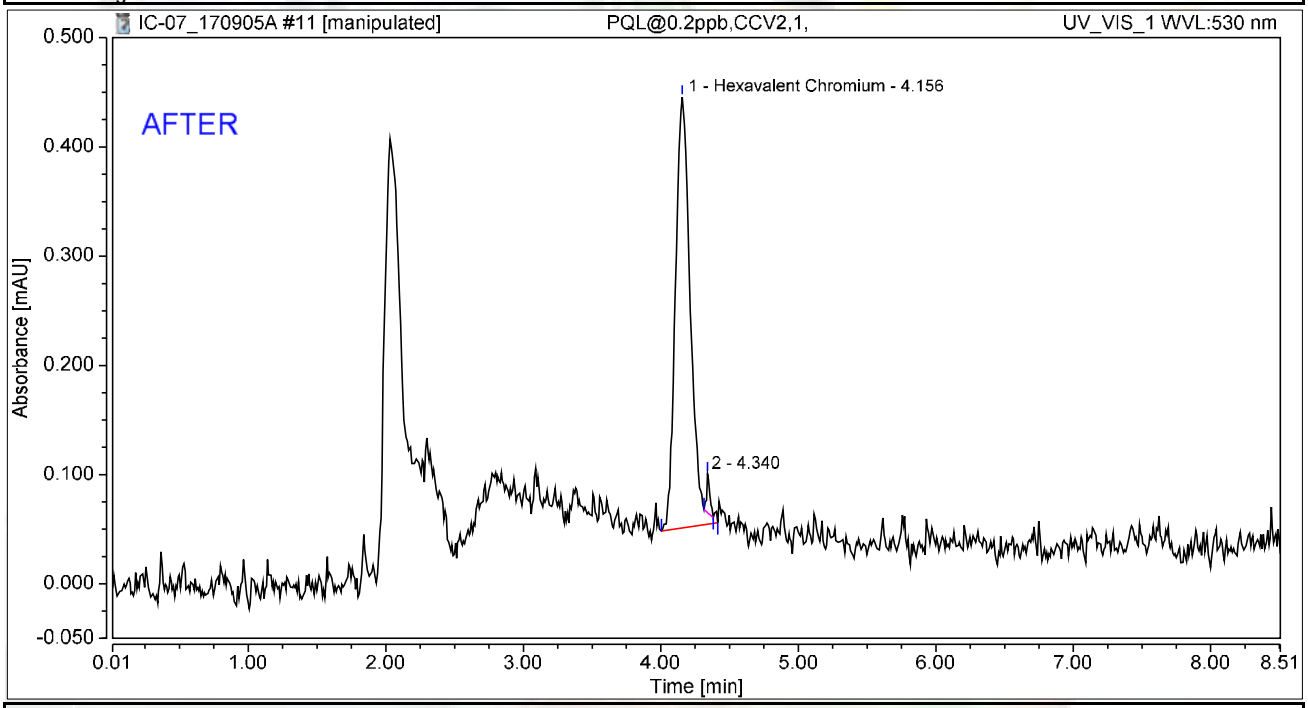
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.283	9.638	100.00	100.00	4.9425
Total:			**1.283**	**9.638**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.049	0.394	97.99	91.72	0.1905
2		4.340	0.001	0.036	2.01	8.28	n.a.
Total:			**0.050**	**0.430**	**100.00**	**100.00**	

rba 9/7/2017

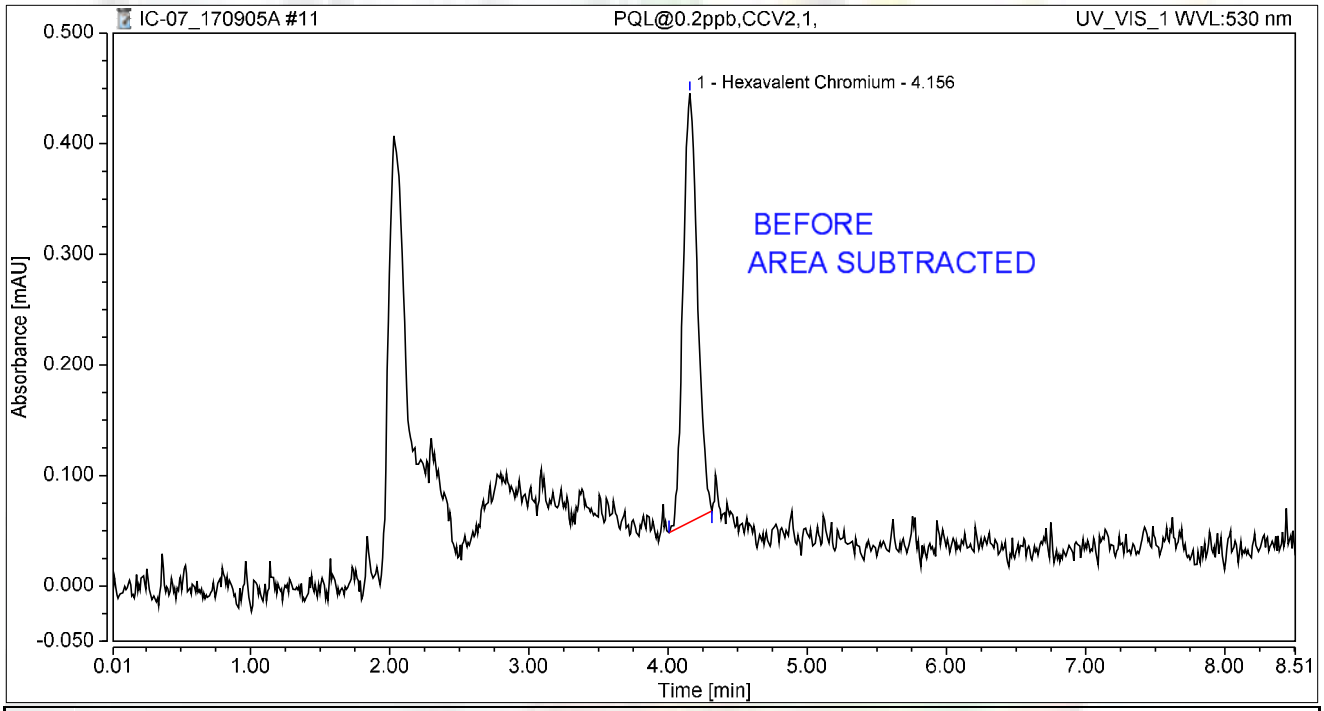
Reviewed by: Nancy 9/12/2017

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.046	0.387	100.00	100.00	0.1788
Total:			**0.046**	**0.387**	**100.00**	**100.00**	

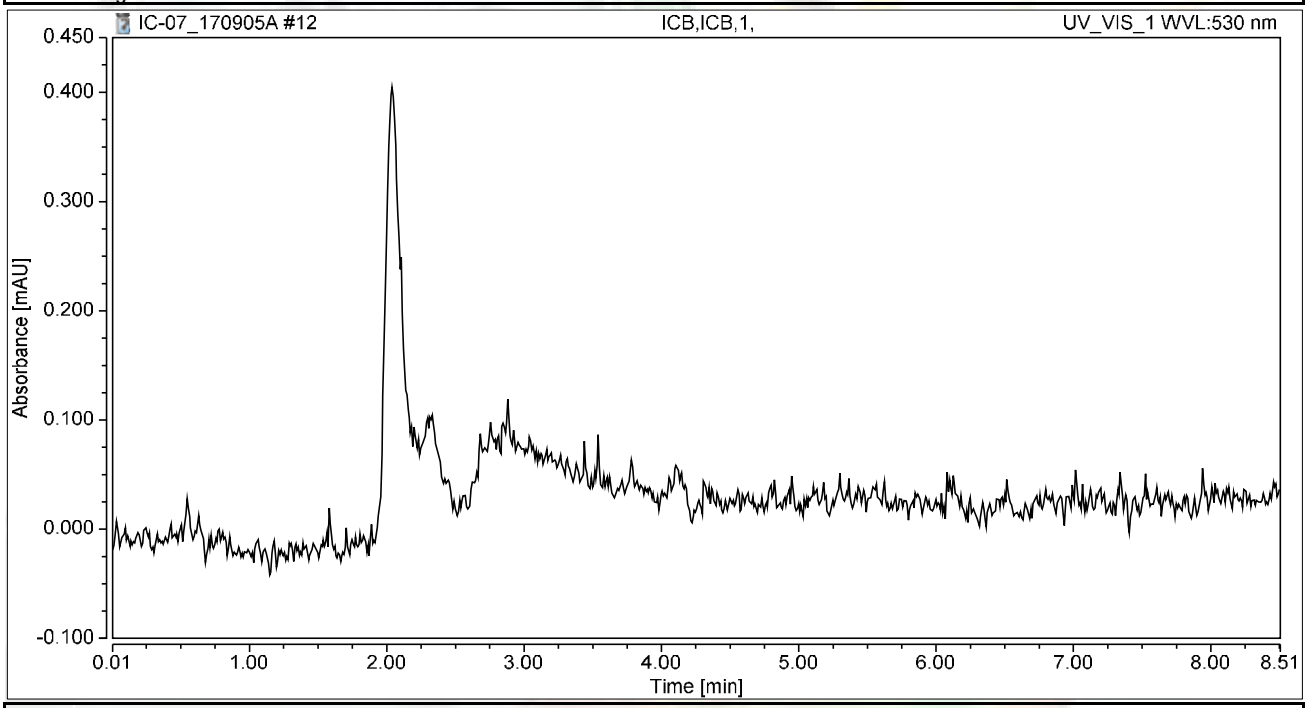
rba 9/7/2017

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170908A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/08/17 8:48 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/08/17 8:59 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/08/17 9:08 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/08/17 9:18 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/08/17 9:27 AM	Reported
15	MB-R117754	MBLK	1	Hexavalent Chromium	09/08/17 9:37 AM	Reported
16	LCS-R117754	LCS	1	Hexavalent Chromium	09/08/17 9:46 AM	Reported
17	N025788-002A	SAMP	100	Hexavalent Chromium	09/08/17 10:13 AM	Not Reported
18	N025788-002AMS	MS	100	Hexavalent Chromium	09/08/17 10:24 AM	Reported
19	N025788-002AMSD	MSD	100	Hexavalent Chromium	09/08/17 10:34 AM	Reported
20	N025788-001A	SAMP	1	Hexavalent Chromium	09/08/17 10:43 AM	Reported
21	N025788-001AMS	MS	1	Hexavalent Chromium	09/08/17 10:53 AM	Not Reported
22	N025789-001A	SAMP	1	Hexavalent Chromium	09/08/17 11:02 AM	Reported
23	N025790-001A	SAMP	50	Hexavalent Chromium	09/08/17 11:11 AM	Reported
24	N025790-002A	SAMP	1	Hexavalent Chromium	09/08/17 11:21 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/08/17 11:30 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/08/17 11:40 AM	Reported
27	N025790-003A	SAMP	1	Hexavalent Chromium	09/08/17 11:49 AM	Reported
28	N025790-006A	SAMP	1	Hexavalent Chromium	09/08/17 11:59 AM	Reported
29	N025790-006ADUP	DUP	1	Hexavalent Chromium	09/08/17 12:08 PM	Reported
30	N025790-007A	SAMP	1	Hexavalent Chromium	09/08/17 12:18 PM	Reported
31	N025788-001AMS	MS	1	Hexavalent Chromium	09/08/17 12:27 PM	Reported
32	CCV-3	CCV	1	Hexavalent Chromium	09/08/17 12:45 PM	Reported
33	CCB-3	CCB	1	Hexavalent Chromium	09/08/17 12:56 PM	Reported

rba 9/11/2017

9/22/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170908A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**08/Sep/17 13:54:26**
No. of Injections:	**36**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/08/2017 08:48	Finished	BLANK
11	BLANK	2	1000	Unknown		09/08/2017 08:59	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/08/2017 09:08	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/08/2017 09:18	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/08/2017 09:27	Finished	CCB R170815A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/08/2017 09:37	Finished	MB R170815A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/08/2017 09:46	Finished	LCS, IWST-170622D
17	N025788-002A,SAMP	9	1000	Unknown		09/08/2017 10:13	Finished	SAMP,0.1>10mL
18	N025788-002AMS,MS	10	1000	Unknown		09/08/2017 10:24	Finished	MS (5ppb), IWST-170622D,0.1
19	N025788-002AMSD,M	11	1000	Unknown		09/08/2017 10:34	Finished	MSD (5ppb), IWST-170622D,0.
20	N025788-001A,SAMP	12	1000	Unknown		09/08/2017 10:43	Finished	SAMP,10mL
21	N025788-001AMS,MS	13	1000	Unknown		09/08/2017 10:53	Finished	MS (1ppb), IWST-170622D,10
22	N025789-001A,SAMP	14	1000	Unknown		09/08/2017 11:02	Finished	SAMP,10mL
23	N025790-001A,SAMP	15	1000	Unknown		09/08/2017 11:11	Finished	SAMP,0.2>10mL
24	N025790-002A,SAMP	16	1000	Unknown		09/08/2017 11:21	Finished	SAMP,10mL
25	CCV-2,CCV1,1,	17	1000	Unknown		09/08/2017 11:30	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	18	1000	Unknown		09/08/2017 11:40	Finished	CCB R170815A
27	N025790-003A,SAMP	19	1000	Unknown		09/08/2017 11:49	Finished	SAMP,10mL
28	N025790-006A,SAMP	20	1000	Unknown		09/08/2017 11:59	Finished	SAMP,10mL
29	N025790-006ADUP,D	21	1000	Unknown		09/08/2017 12:08	Finished	DUP,10mL
30	N025790-007A,SAMP	22	1000	Unknown		09/08/2017 12:18	Finished	SAMP,10mL
31	N025788-001AMS,MS	23	1000	Unknown		09/08/2017 12:27	Finished	MS (5ppb), IWST-170622D,10
32	CCV-3,CCV,1,	25	1000	Unknown		09/08/2017 12:45	Finished	CCV @5ppb, IWST-170622C
33	CCB-3,CCB,1,	26	1000	Unknown		09/08/2017 12:56	Finished	CCB R170815A
34	SHUTDOWN	27	1000	Unknown		09/08/2017 13:31	Finished	
35	Eluent: R170906C	28	1000	Unknown		n.a.	Finished	Eluent
36	PCR: R170907A	29	1000	Unknown		n.a.	Finished	Post-Column Reagent

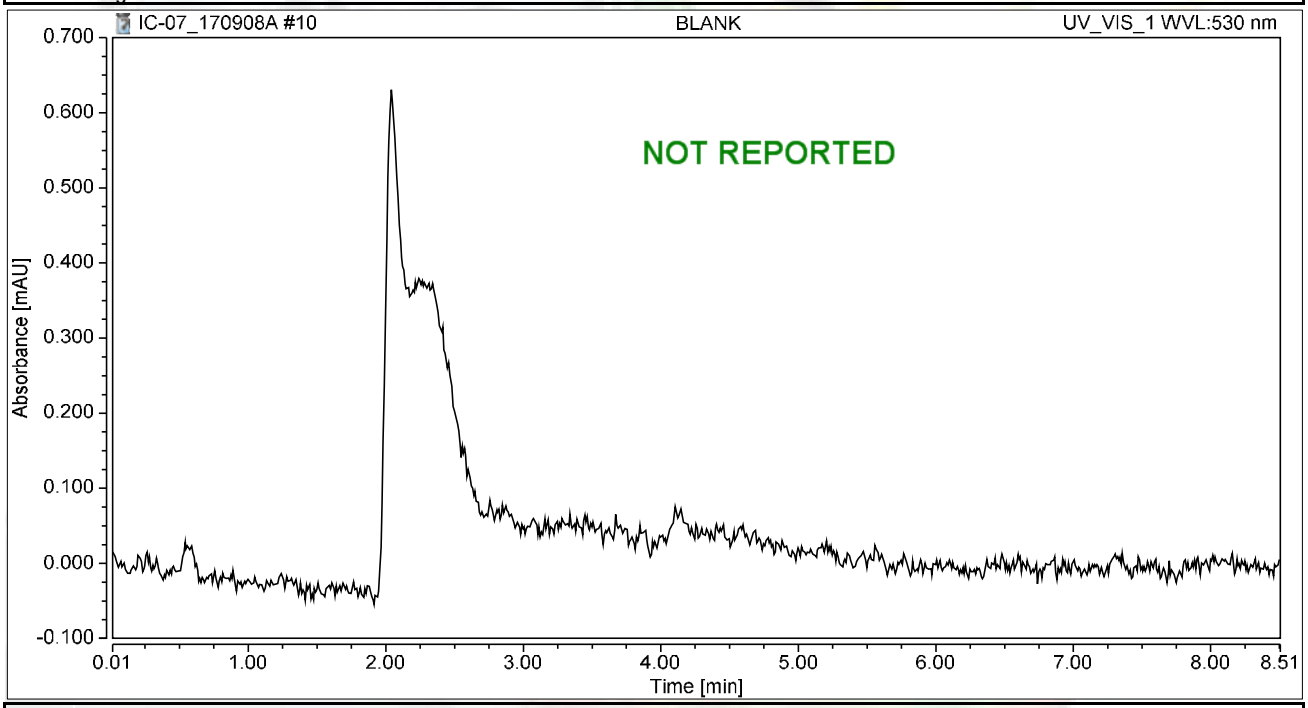
rba 9/11/2017

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 08:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

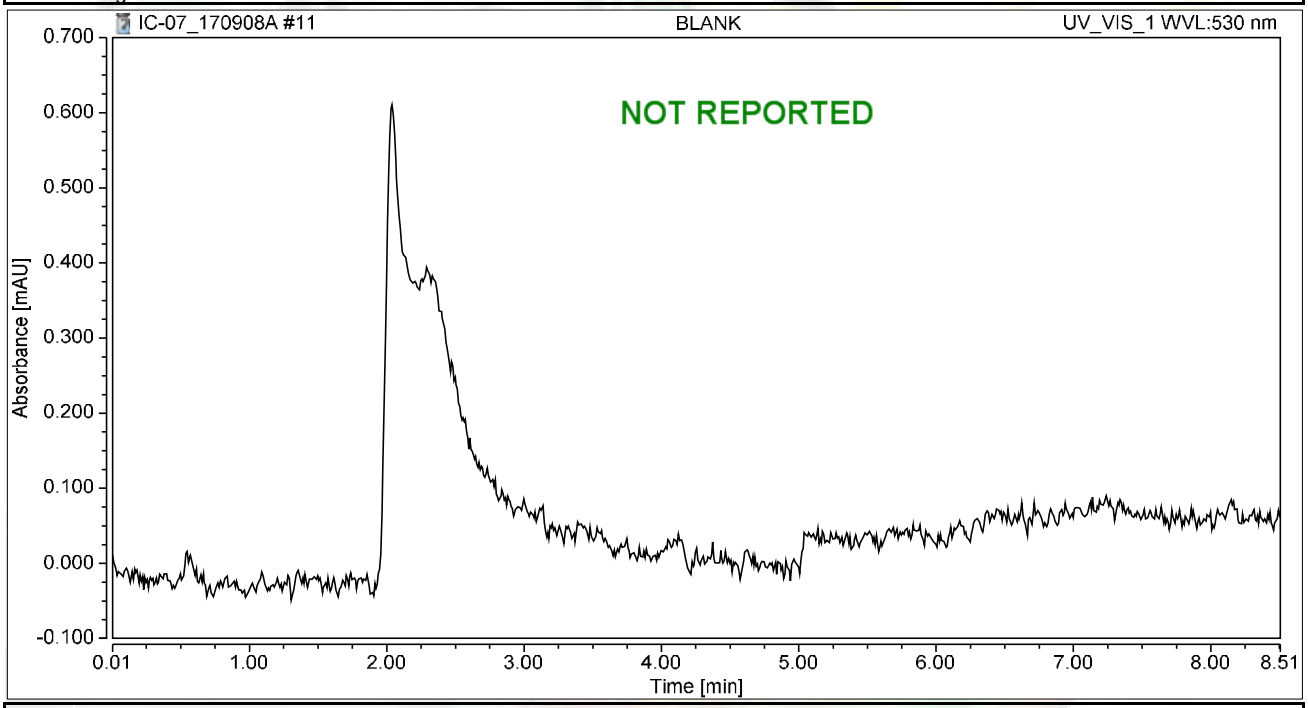
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 08:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

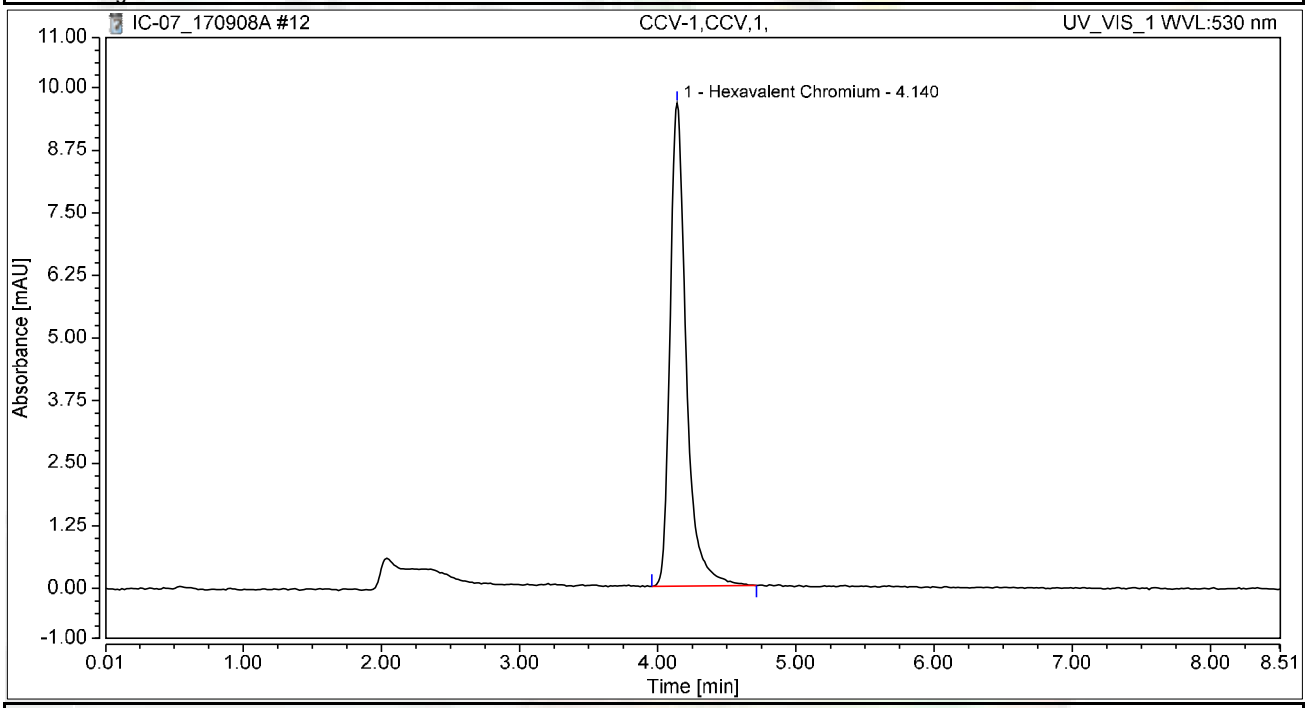
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 09:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

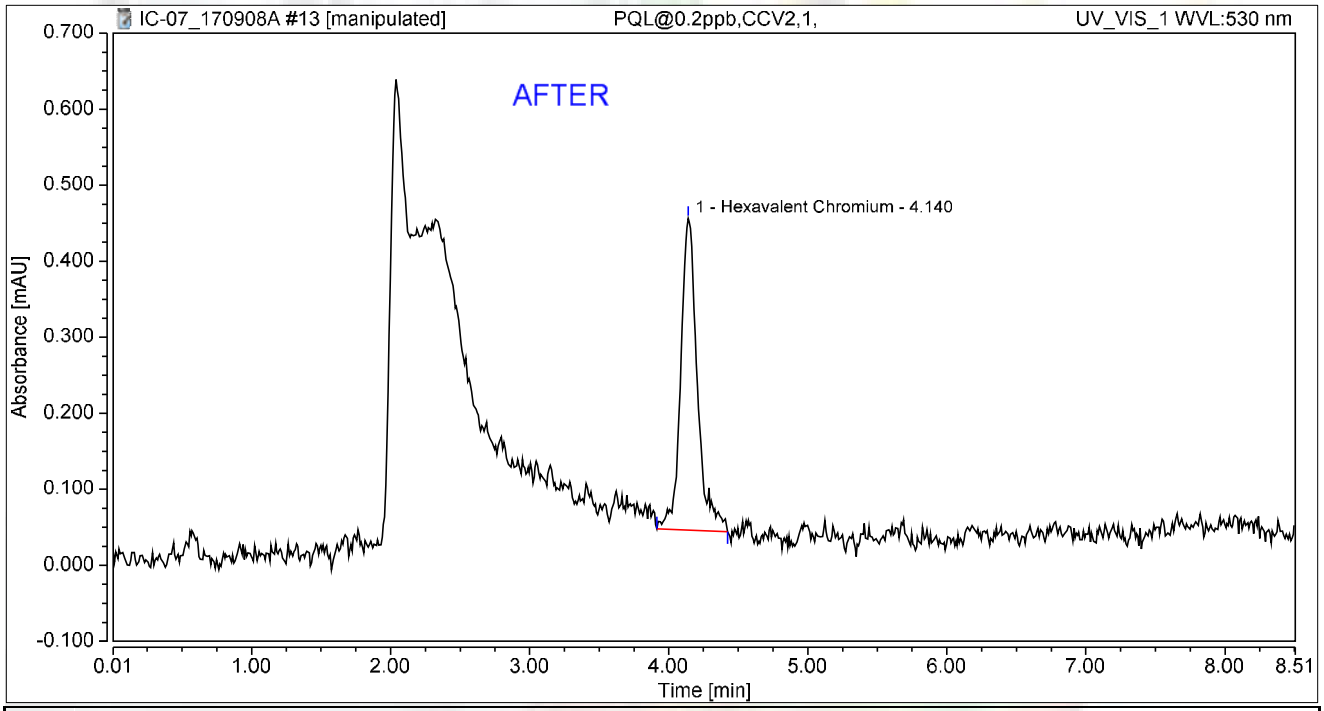
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.140	1.310	9.648	100.00	100.00	5.0464
Total:			**1.310**	**9.648**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 09:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.140	0.057	0.410	100.00	100.00	0.2192
Total:			**0.057**	**0.410**	**100.00**	**100.00**	

rba 9/11/2017

Reviewed by: Nancy 9/22/2017

My first report/Integration

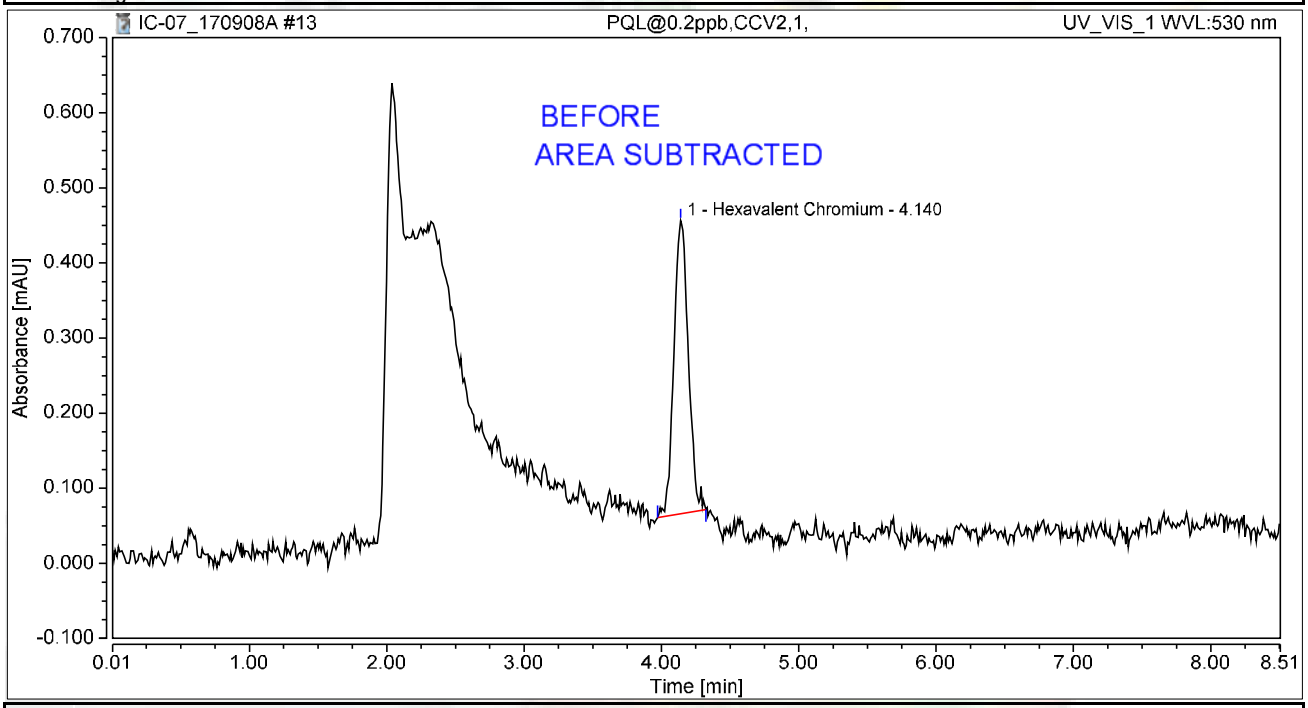
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 09:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.140	0.047	0.390	100.00	100.00	0.1829
Total:			**0.047**	**0.390**	**100.00**	**100.00**	

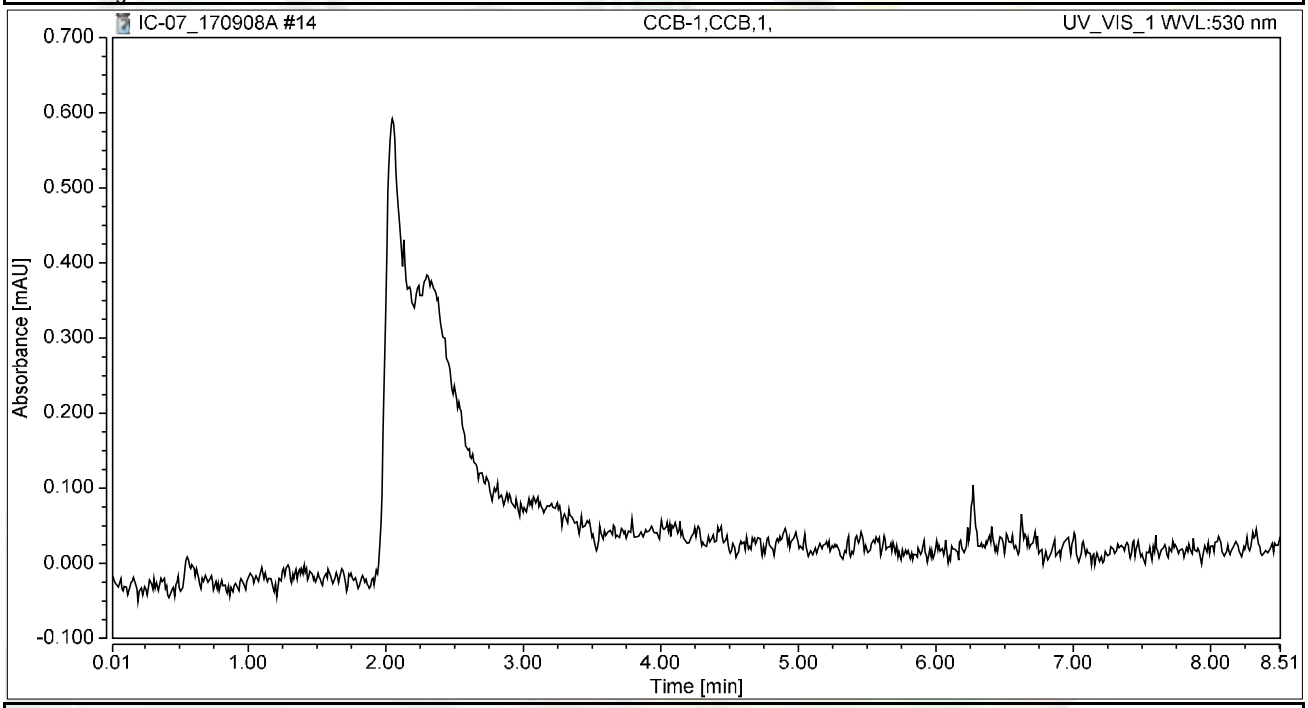
rba 9/11/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

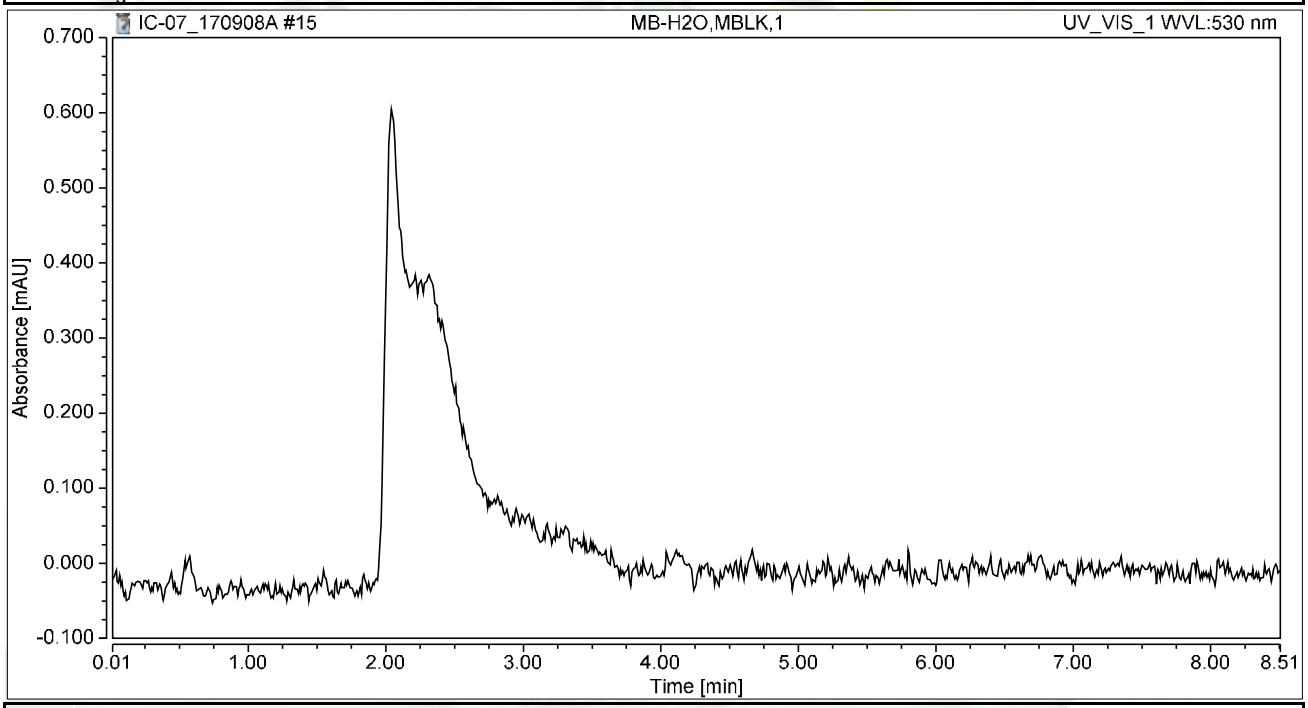
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 09:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

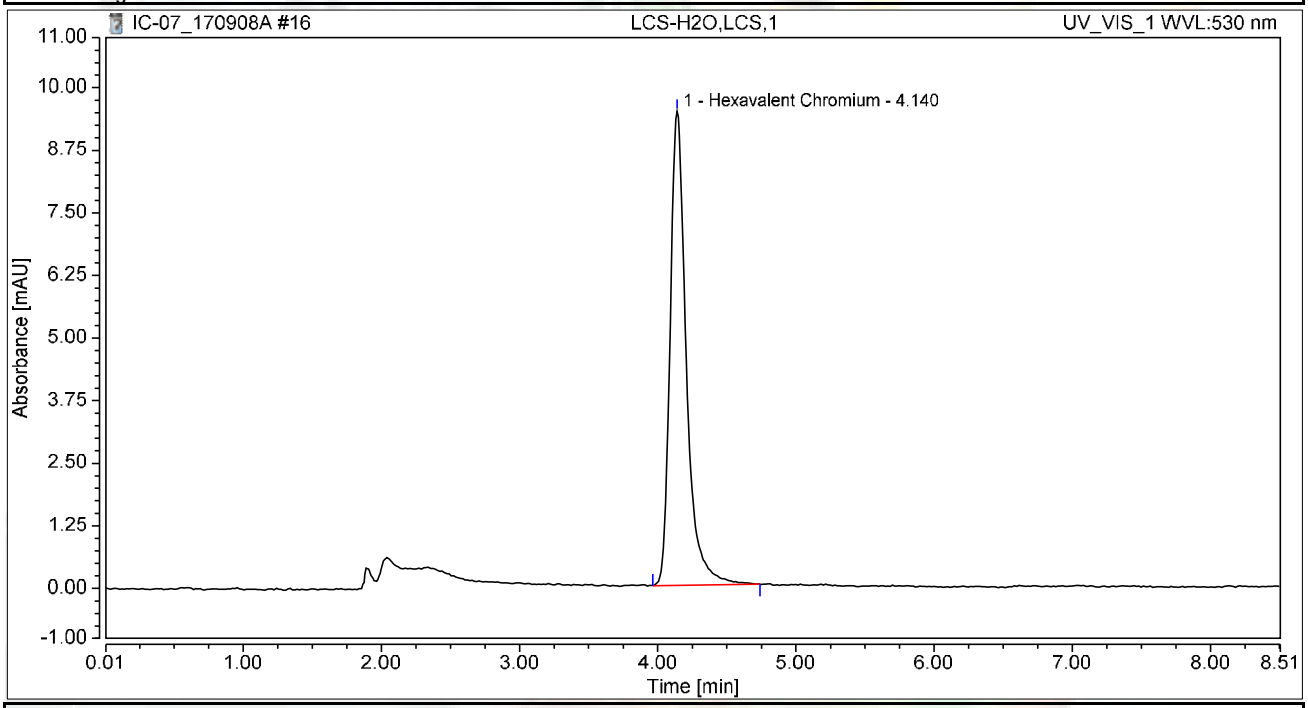
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 09:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

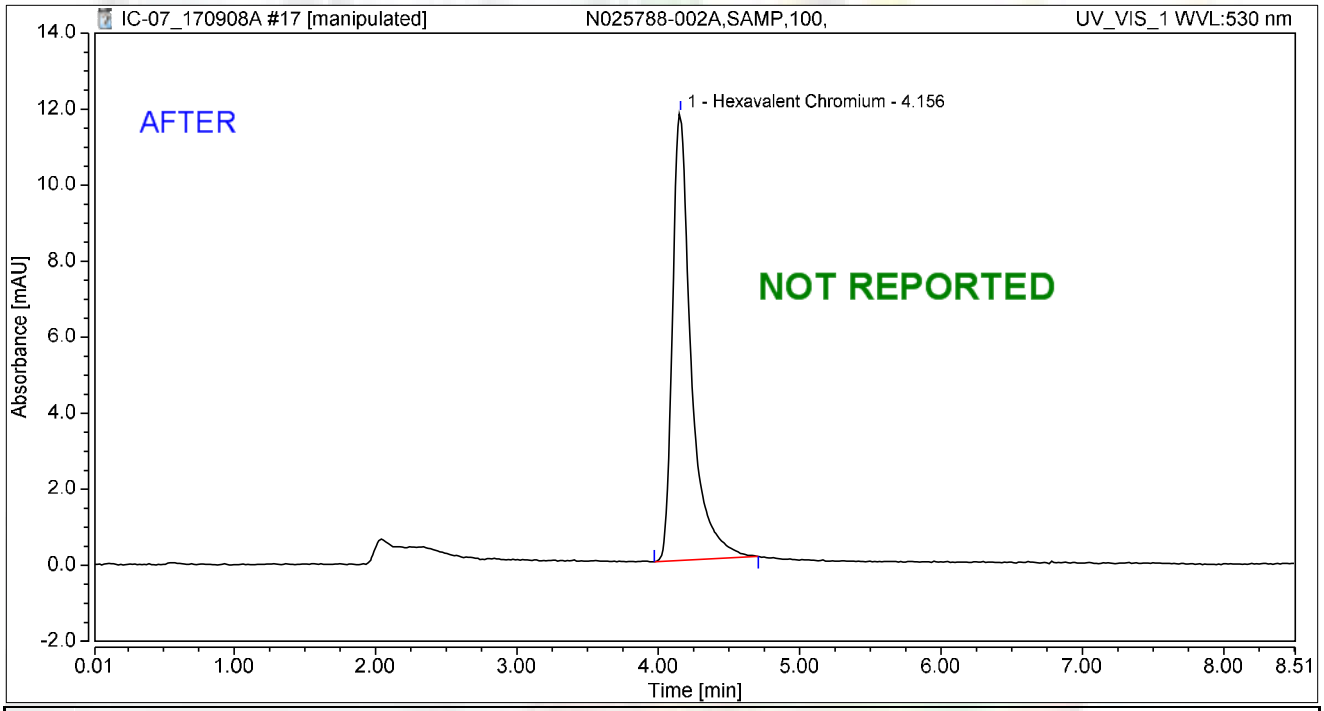
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.140	1.288	9.467	100.00	100.00	4.9606
Total:			**1.288**	**9.467**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-002A,SAMP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.807	11.770	100.00	100.00	6.9628
Total:			**1.807**	**11.770**	**100.00**	**100.00**	

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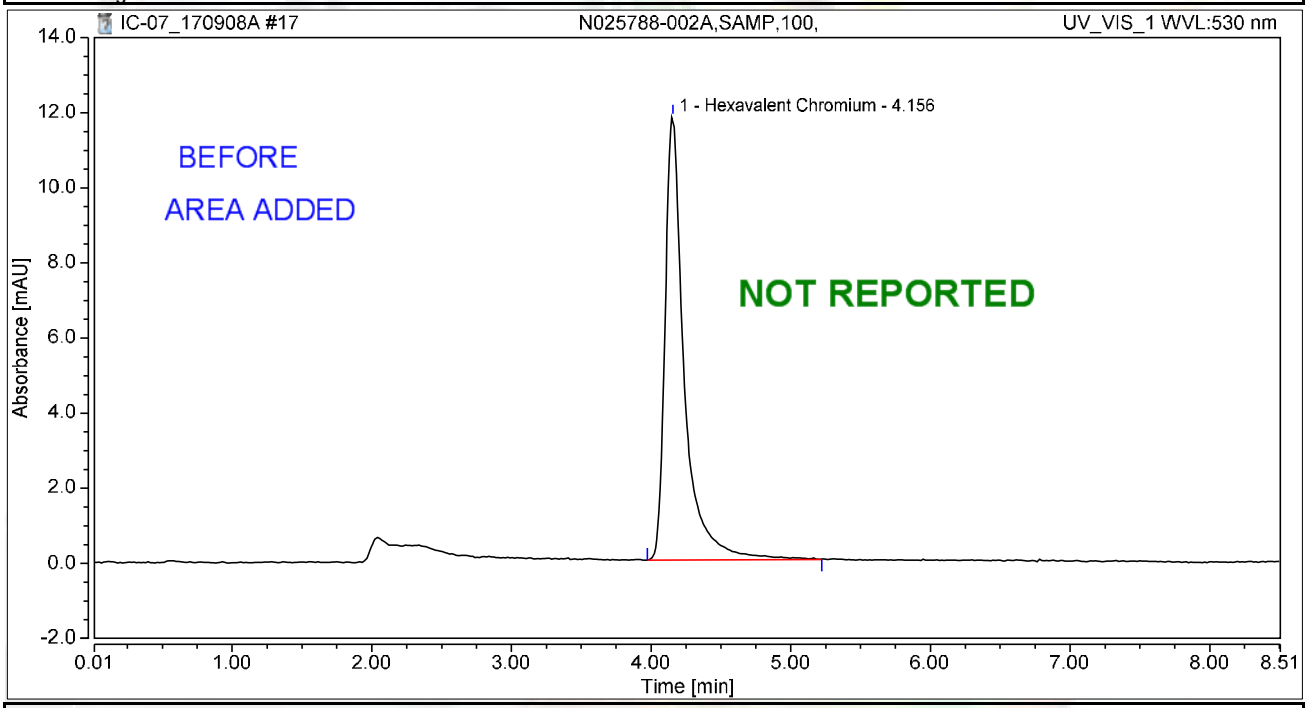
Chromatogram and Results

Injection Details

Injection Name:	**N025788-002A,SAMP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.884	11.803	100.00	100.00	7.2600
Total:			**1.884**	**11.803**	**100.00**	**100.00**	

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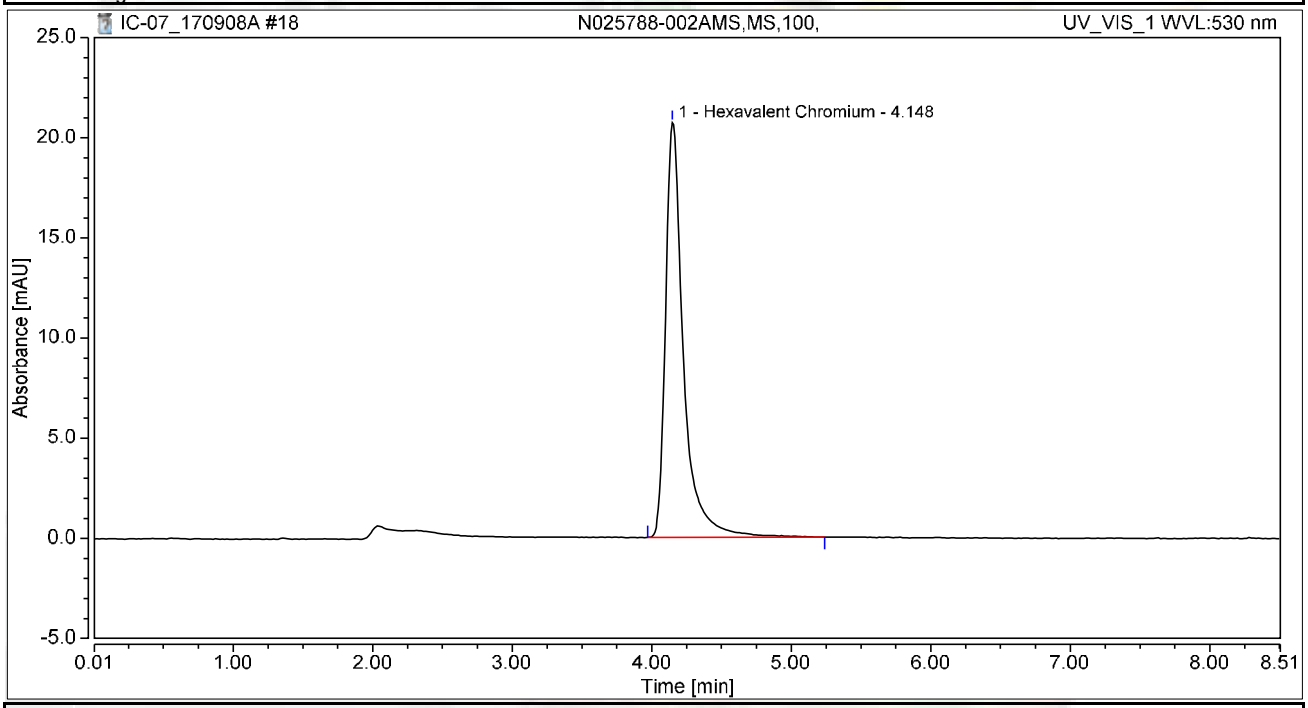
Chromatogram and Results

Injection Details

Injection Name:	**N025788-002AMS,MS,100,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

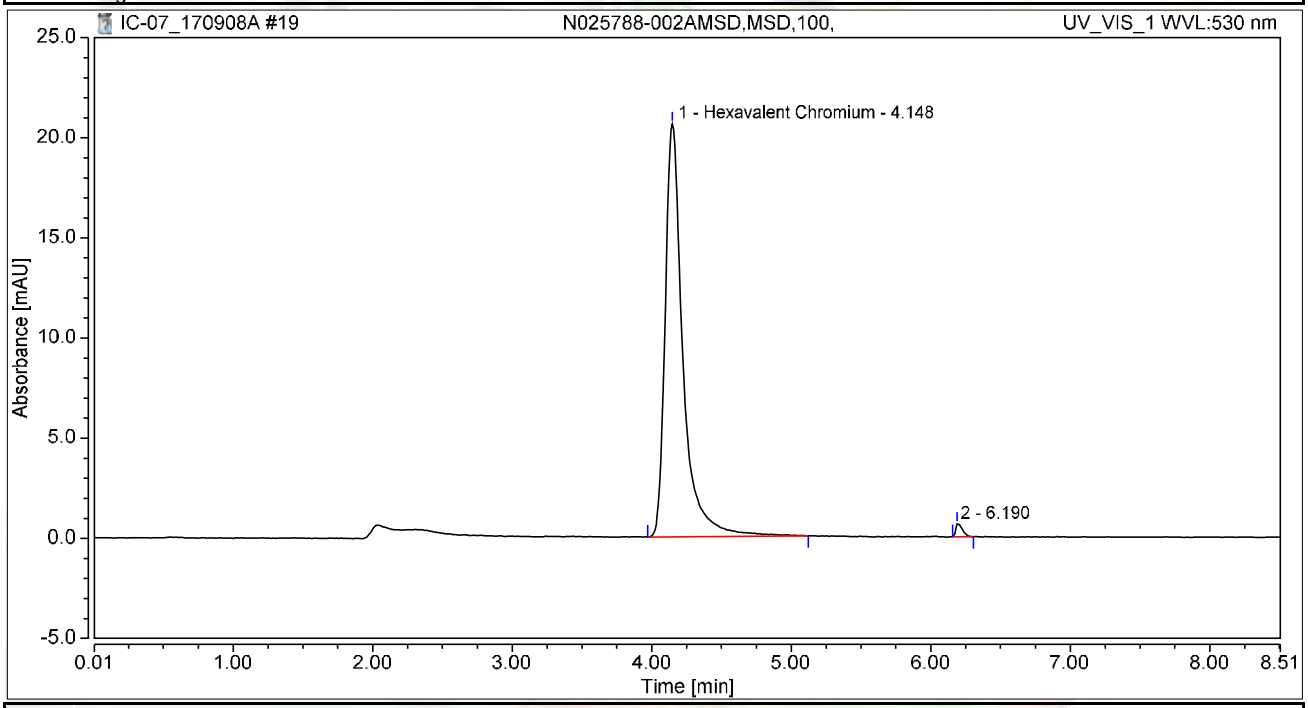
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.148	3.098	20.711	100.00	100.00	11.9351
Total:			**3.098**	**20.711**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-002AMSD,MSD,100,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

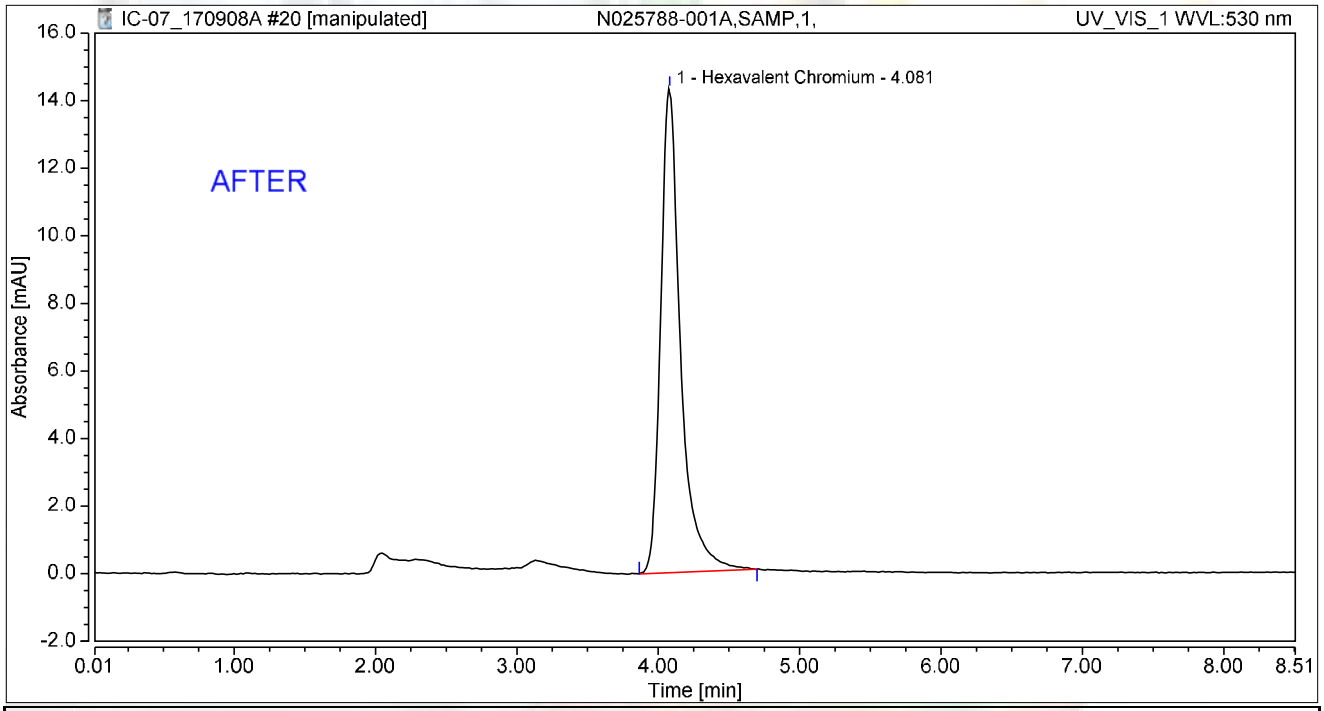
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.148	3.035	20.618	98.82	97.02	11.6945
2		6.190	0.036	0.634	1.18	2.98	n.a.
Total:			**3.071**	**21.252**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	2.349	14.335	100.00	100.00	9.0499
Total:			**2.349**	**14.335**	**100.00**	**100.00**	

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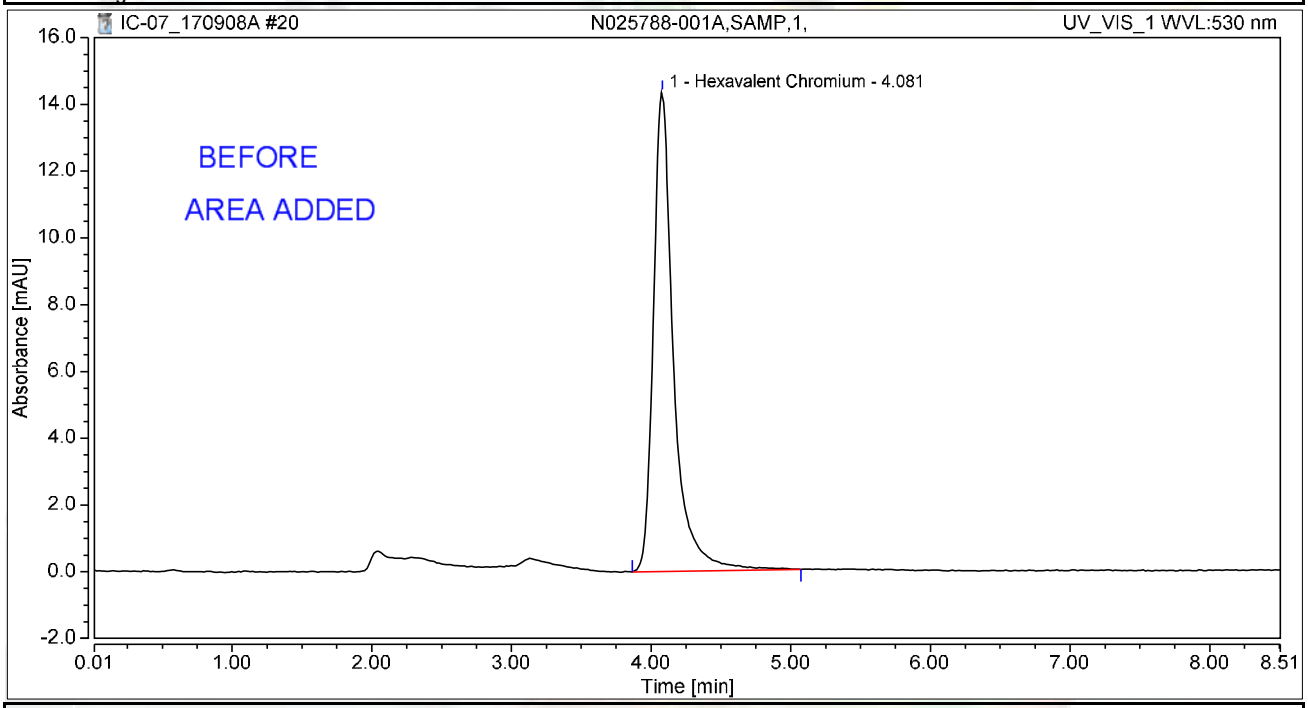
Reviewed by: Nancy 9/22/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	2.407	14.359	100.00	100.00	9.2728
Total:			**2.407**	**14.359**	**100.00**	**100.00**	

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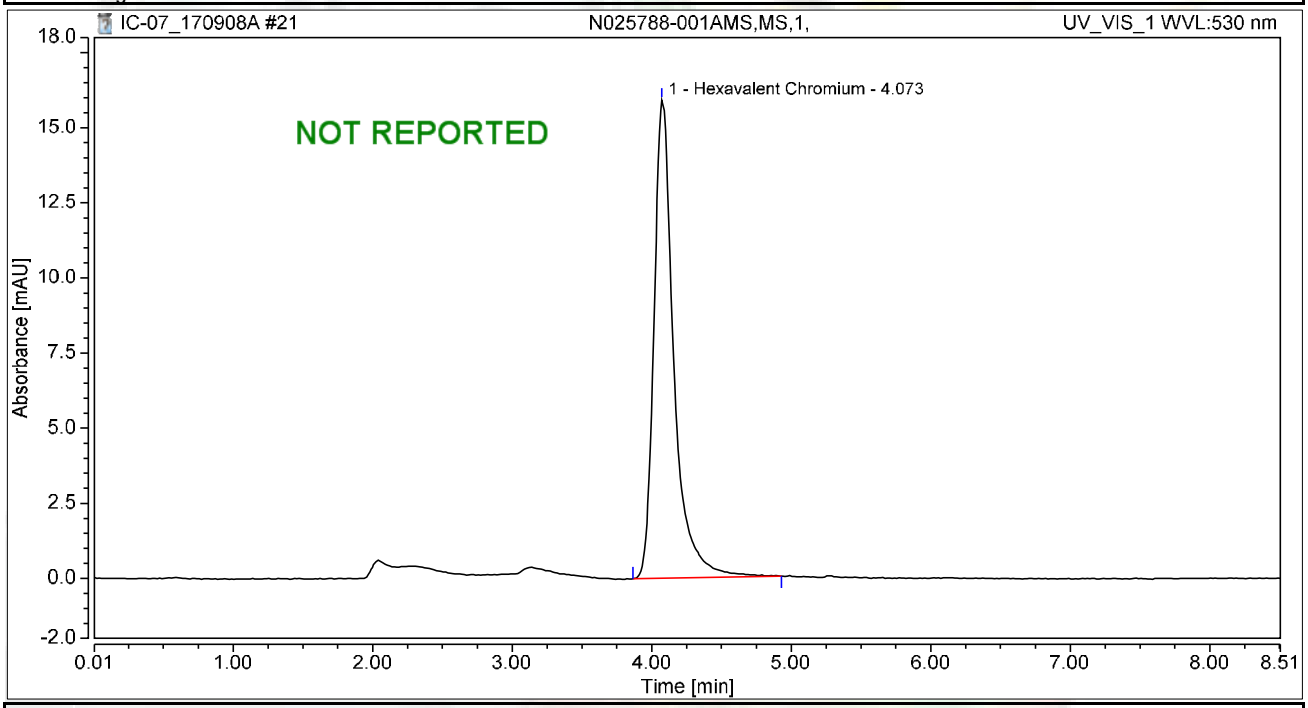
Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 10:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

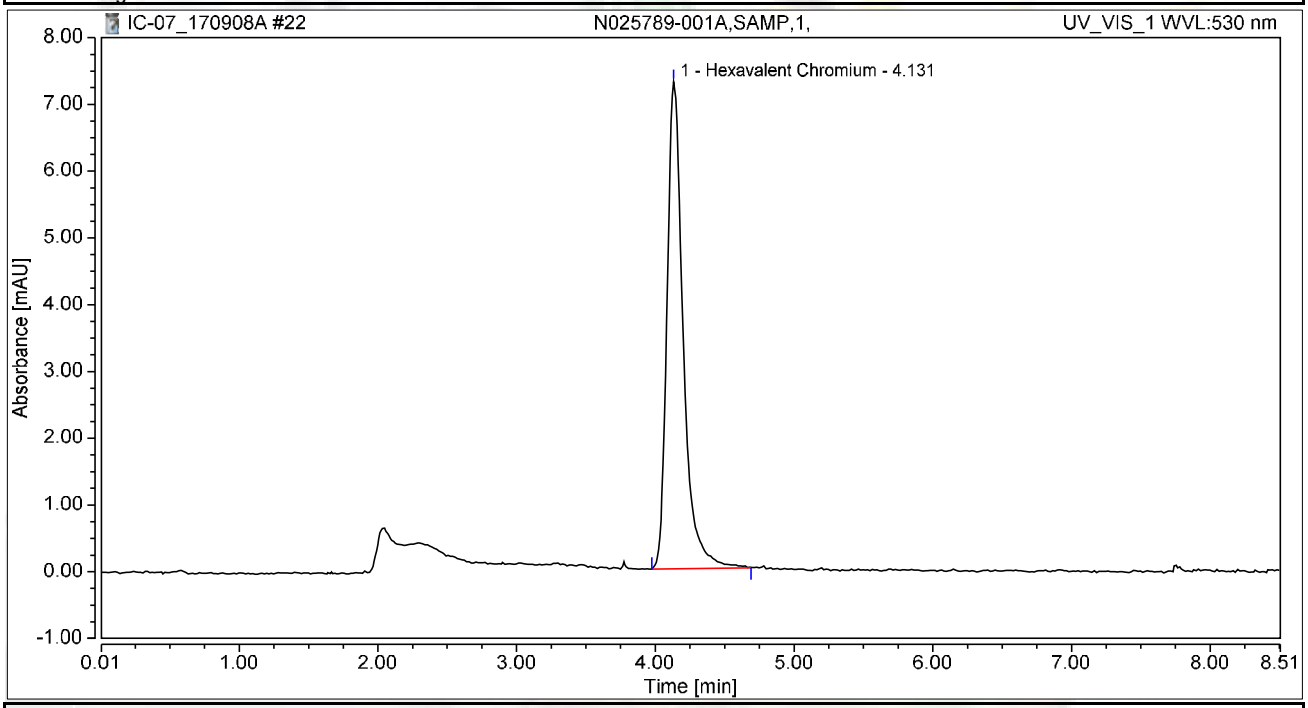
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.633	15.914	100.00	100.00	10.1434
Total:			**2.633**	**15.914**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025789-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

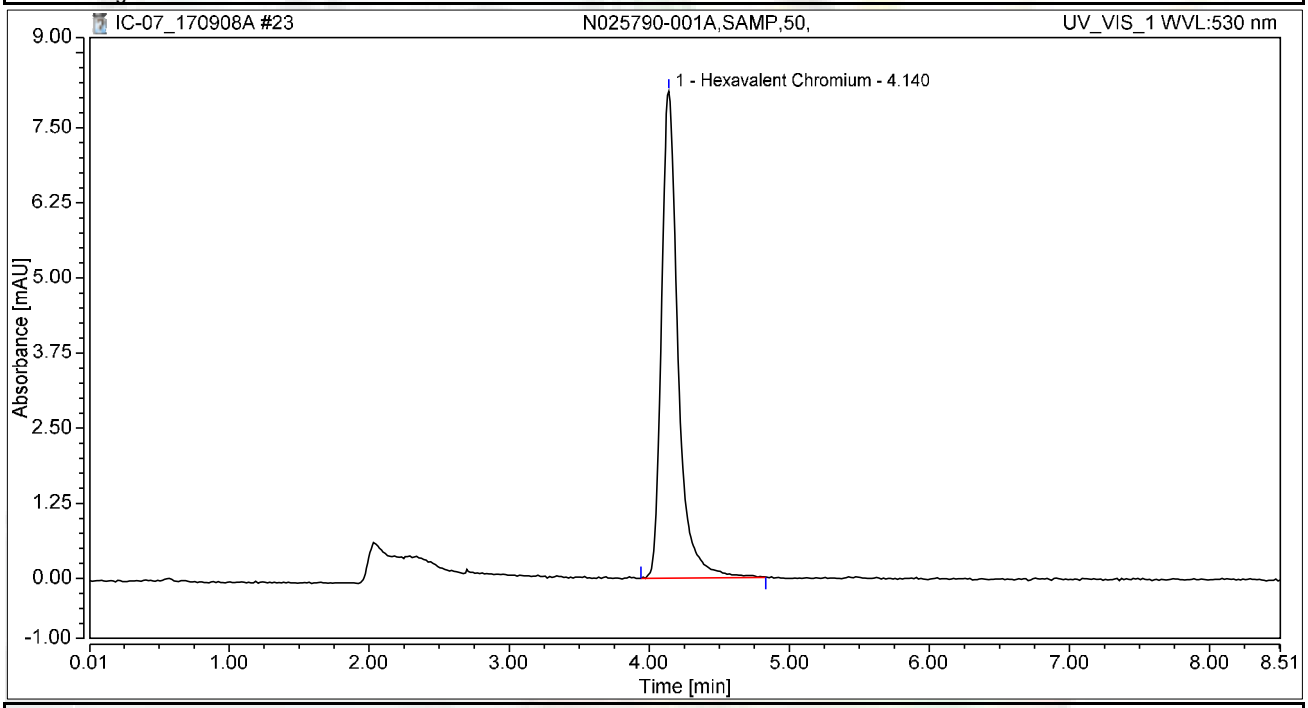
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.131	0.990	7.301	100.00	100.00	3.8137
Total:			**0.990**	**7.301**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025790-001A,SAMP,50,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

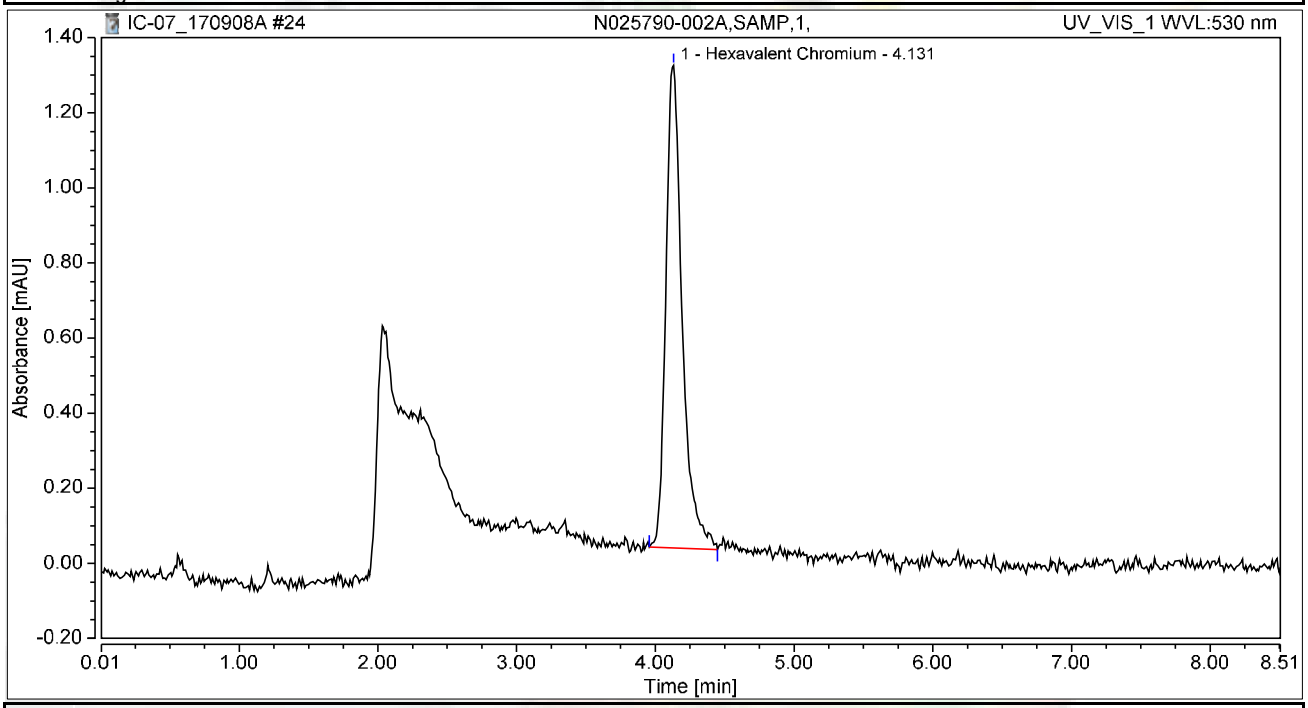
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.140	1.112	8.104	100.00	100.00	4.2846
Total:			**1.112**	**8.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025790-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

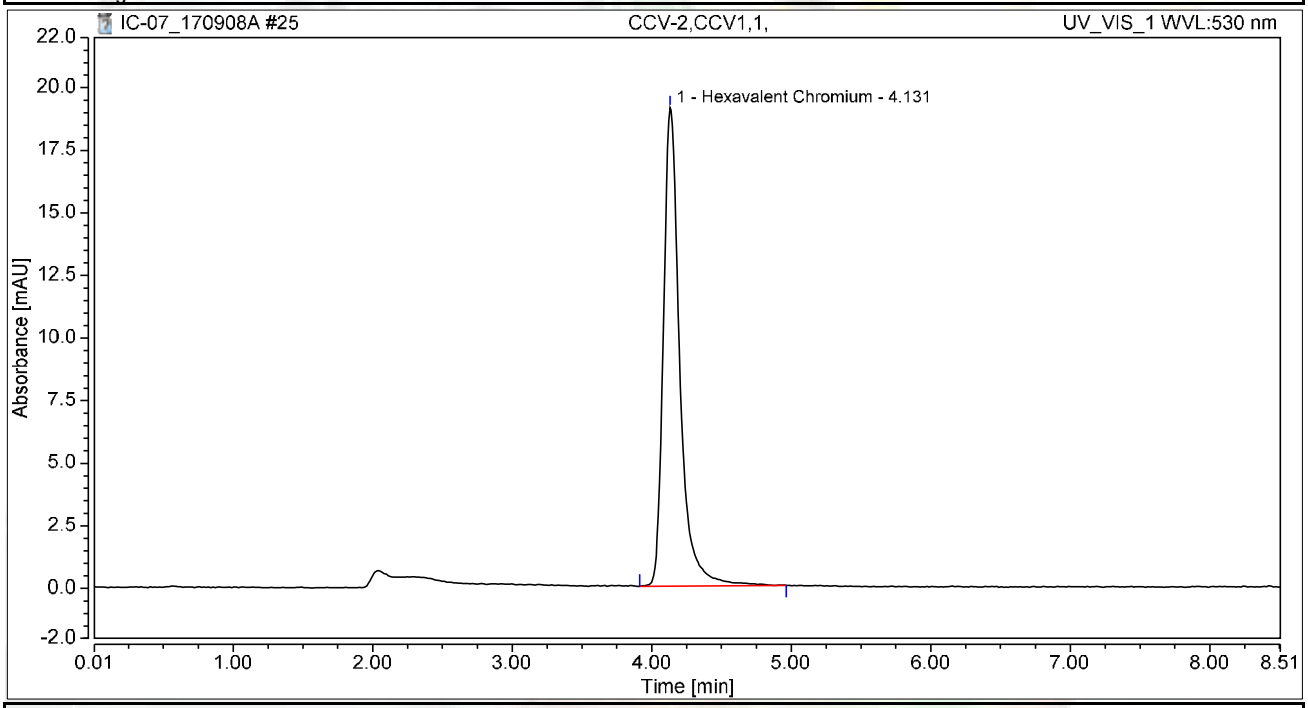
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.131	0.176	1.285	100.00	100.00	0.6778
Total:			**0.176**	**1.285**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

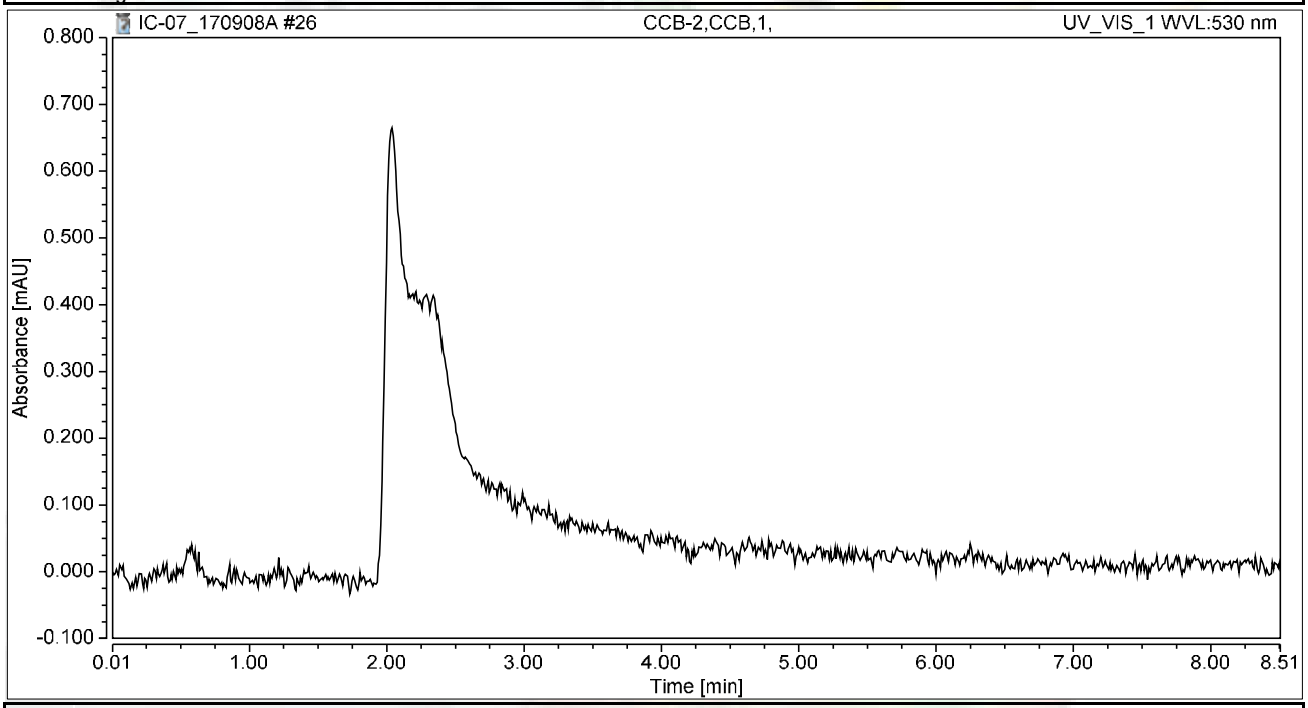
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.131	2.601	19.104	100.00	100.00	10.0223
Total:			**2.601**	**19.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

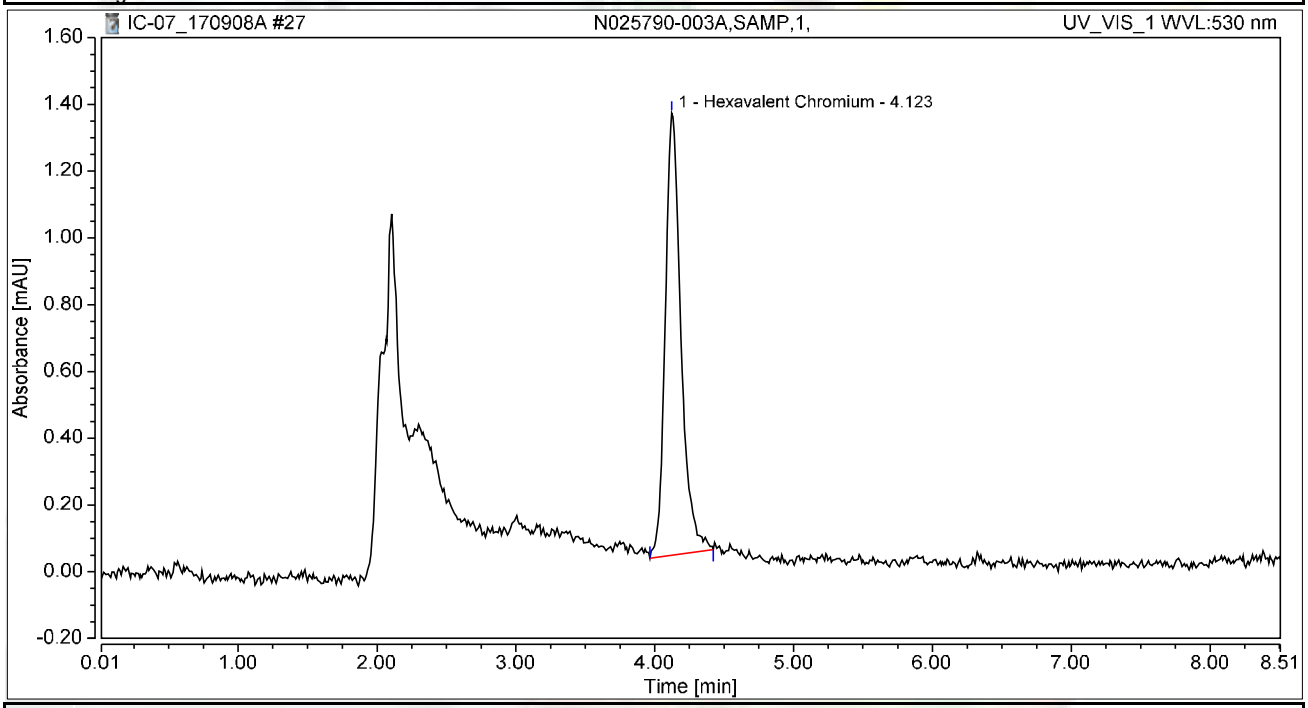
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025790-003A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

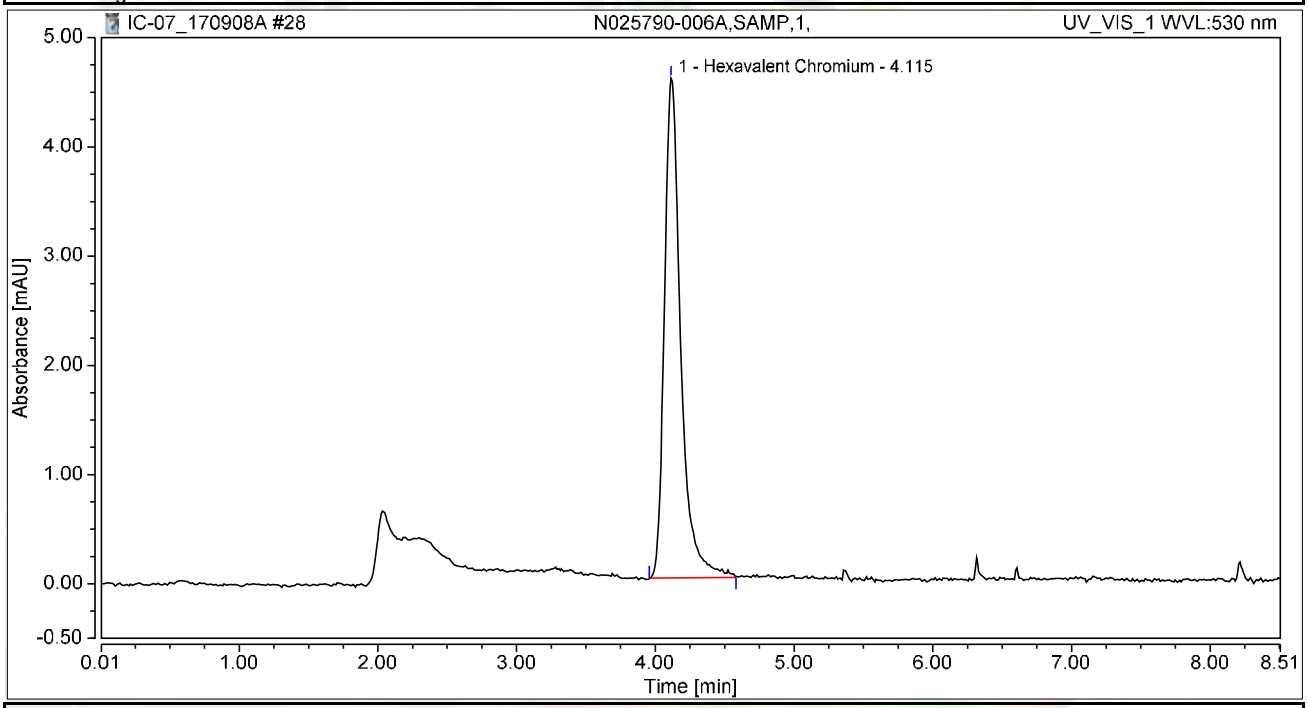
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	0.174	1.324	100.00	100.00	0.6712
Total:			**0.174**	**1.324**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025790-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

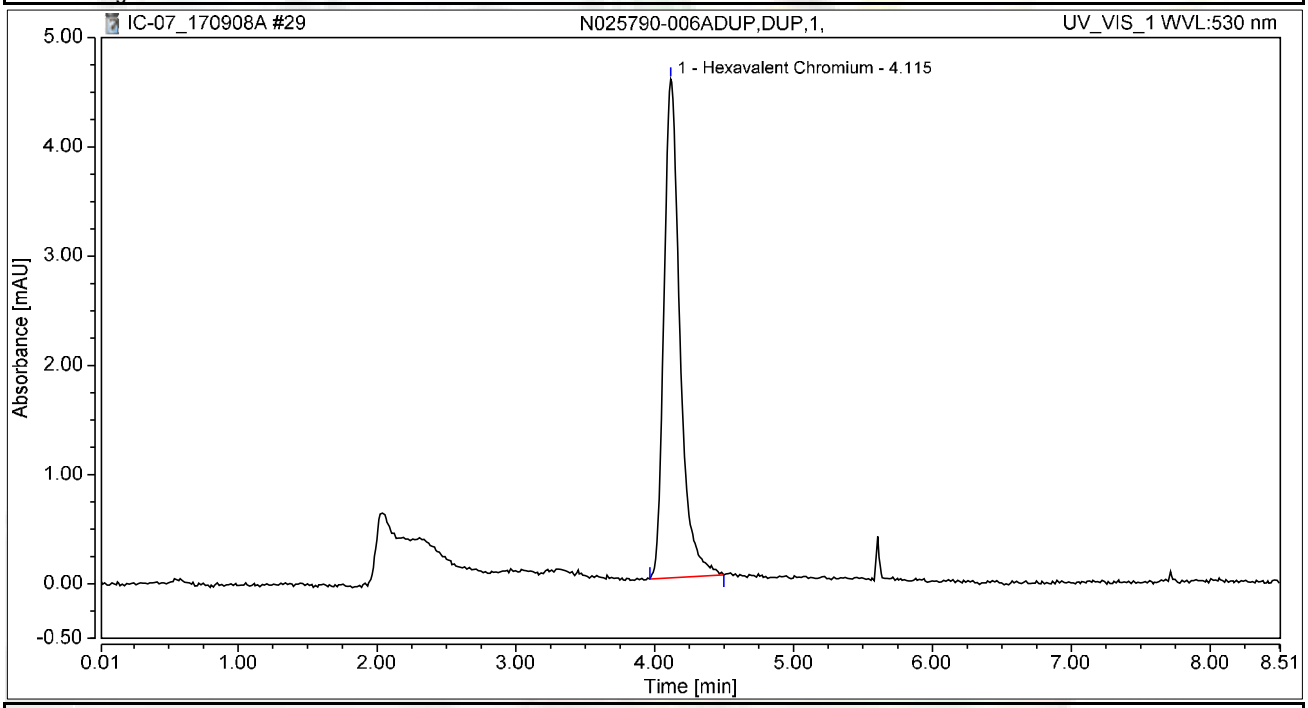
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.115	0.625	4.575	100.00	100.00	2.4068
Total:			**0.625**	**4.575**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025790-006ADUP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

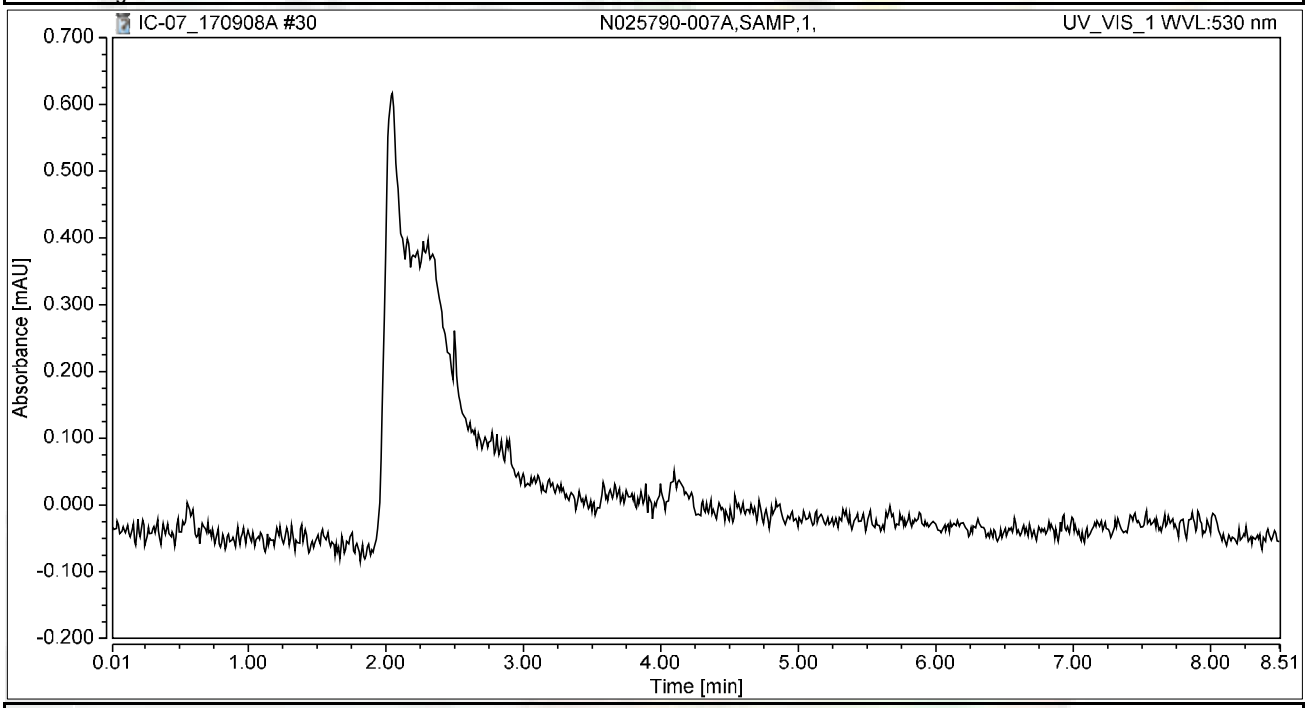
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.115	0.612	4.564	100.00	100.00	2.3587
Total:			**0.612**	**4.564**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025790-007A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

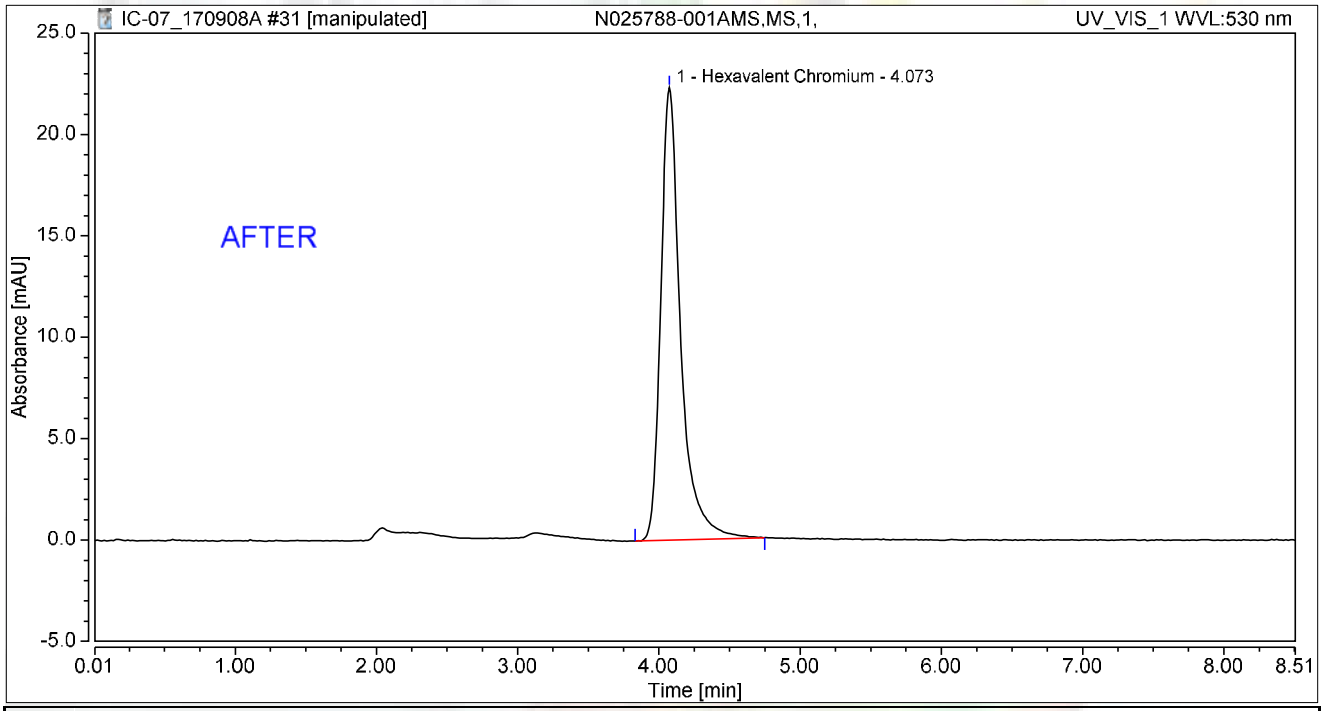
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.636	22.319	100.00	100.00	14.0075
Total:			**3.636**	**22.319**	**100.00**	**100.00**	

rba 9/11/2017

Reviewed by: 9/22/2017

My first report/Integration

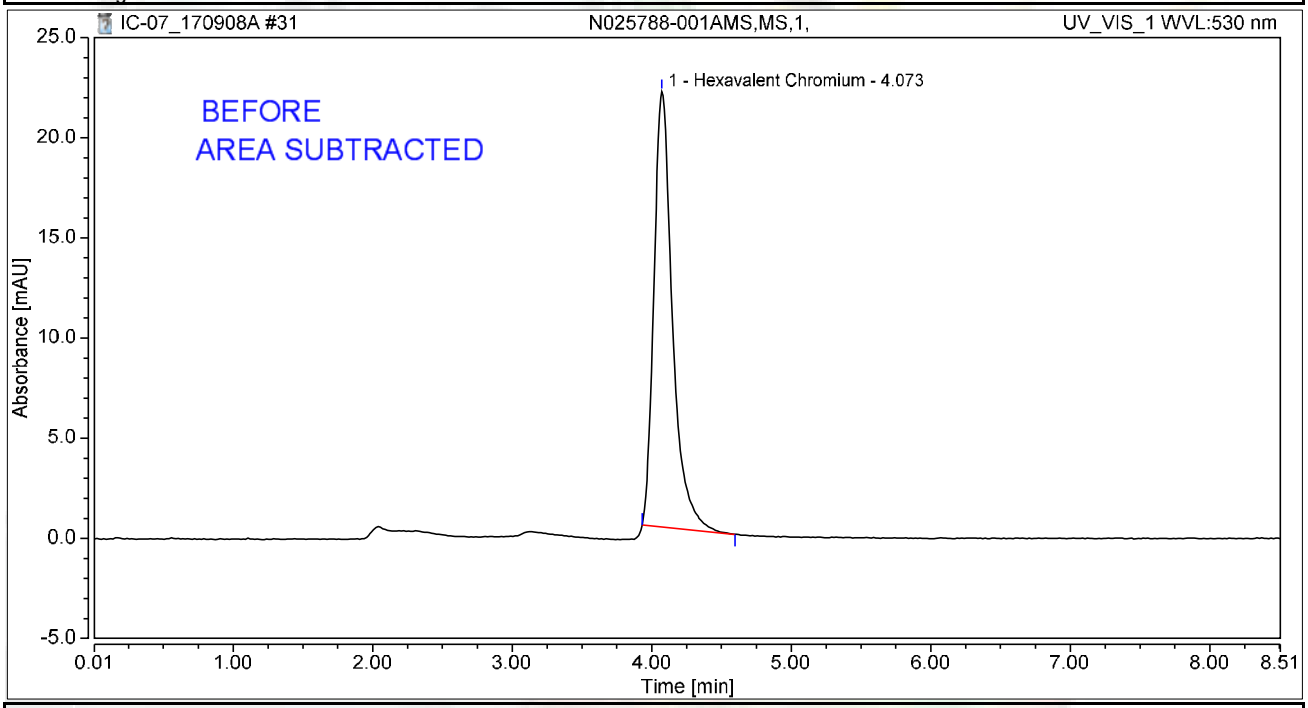
Chromeleon (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.343	21.739	100.00	100.00	12.8807
Total:			**3.343**	**21.739**	**100.00**	**100.00**	

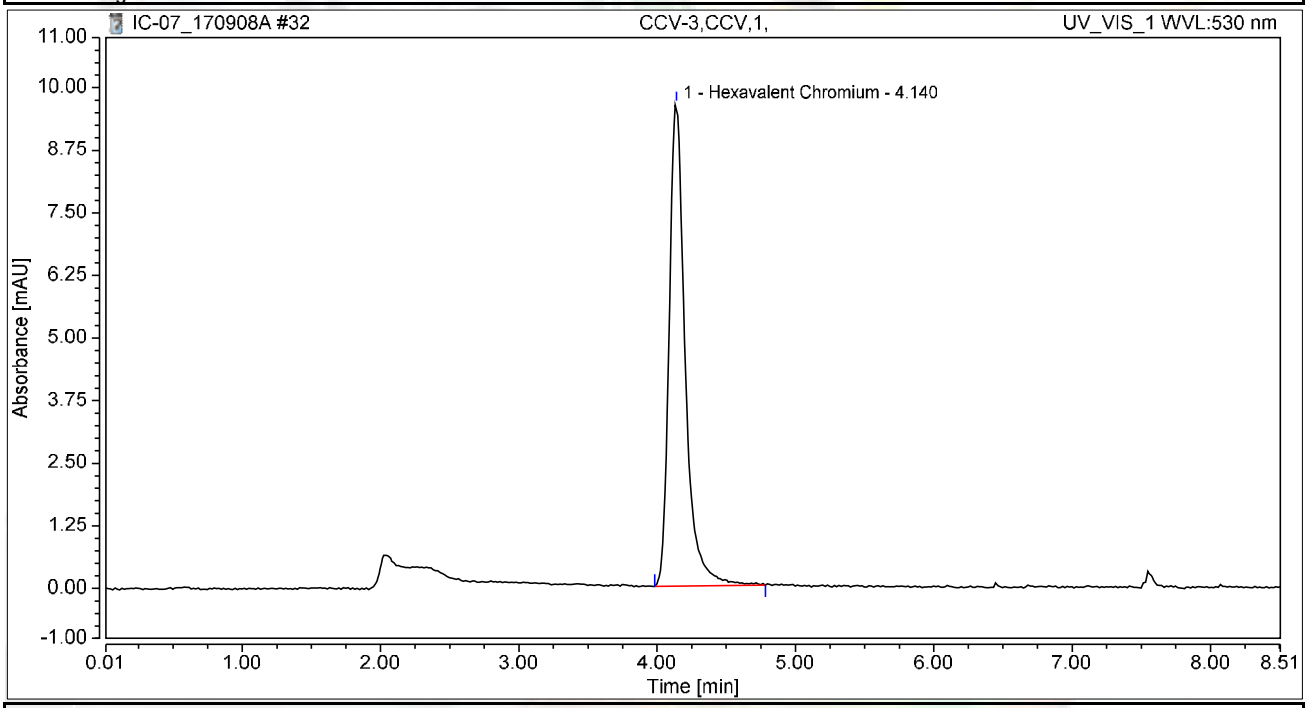
rba 9/11/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 12:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

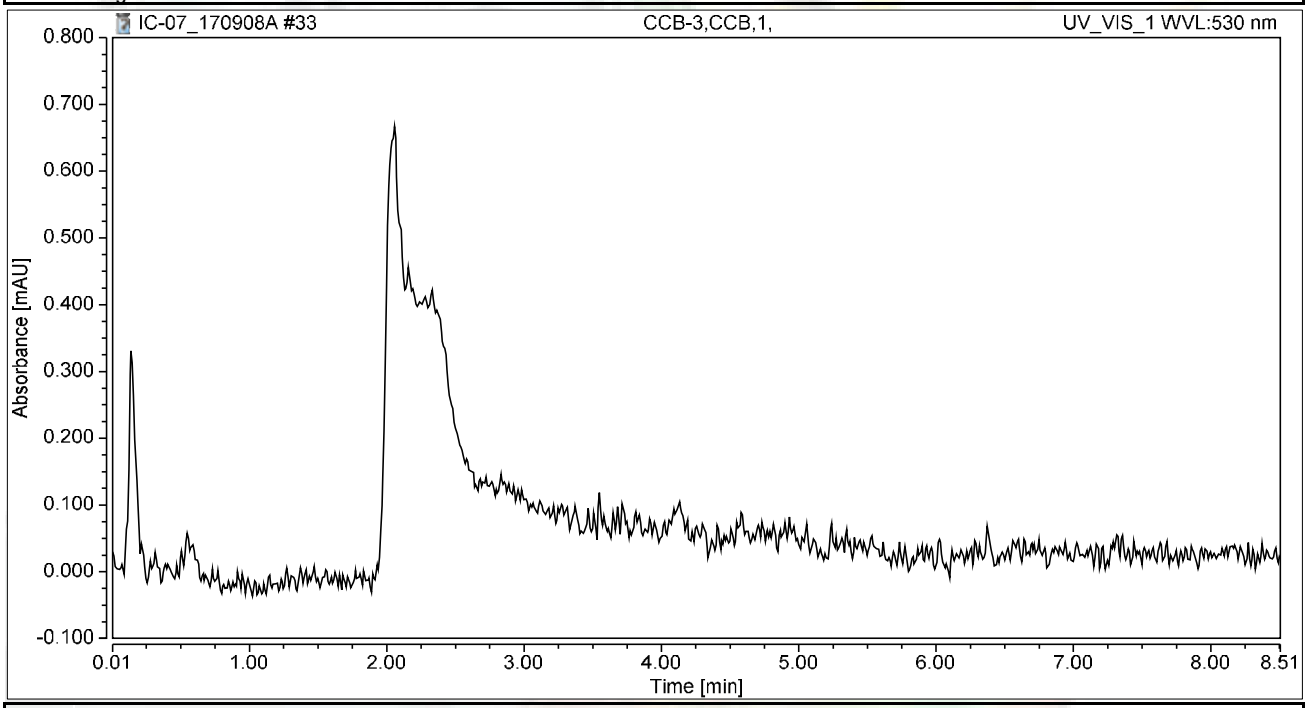
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.140	1.296	9.637	100.00	100.00	4.9941
Total:			**1.296**	**9.637**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/Sep/17 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170913A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/13/17 9:23 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/13/17 9:34 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/13/17 9:44 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/13/17 9:53 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/13/17 10:03 AM	Reported
15	MB-R117838	MBLK	1	Hexavalent Chromium	09/13/17 10:12 AM	Reported
16	LCS-R117838	LCS	1	Hexavalent Chromium	09/13/17 10:22 AM	Reported
17	N025871-001A	SAMP	1	Hexavalent Chromium	09/13/17 10:43 AM	Reported
18	N025871-001ADUP	DUP	1	Hexavalent Chromium	09/13/17 10:54 AM	Reported
19	N025871-001AMS	MS	1	Hexavalent Chromium	09/13/17 11:03 AM	Reported
20	N025871-001AMSD	MSD	1	Hexavalent Chromium	09/13/17 11:13 AM	Reported
21	CCV-2	CCV1	1	Hexavalent Chromium	09/13/17 11:22 AM	Reported
22	CCB-2	CCB	1	Hexavalent Chromium	09/13/17 11:32 AM	Reported
23	N025788-001A	SAMP	1	Hexavalent Chromium	09/13/17 11:49 AM	Not Reported
24	N025788-001AMS	MS	1	Hexavalent Chromium	09/13/17 12:00 PM	Not Reported
25	N025788-002A	SAMP	100	Hexavalent Chromium	09/13/17 12:10 PM	Reported
26	N025788-002AMS	MS	100	Hexavalent Chromium	09/13/17 12:20 PM	Reported
27	CCV-3	CCV	1	Hexavalent Chromium	09/13/17 1:07 PM	Reported
28	CCB-3	CCB	1	Hexavalent Chromium	09/13/17 1:18 PM	Reported
29	N025881-001A	SAMP	5	Hexavalent Chromium	09/13/17 2:15 PM	Reported
30	N025881-002A	SAMP	1	Hexavalent Chromium	09/13/17 2:26 PM	Reported
31	N025881-003A	SAMP	2	Hexavalent Chromium	09/13/17 2:35 PM	Reported
32	N025881-004A	SAMP	5	Hexavalent Chromium	09/13/17 2:45 PM	Reported
33	N025881-003A	SAMP	5	Hexavalent Chromium	09/13/17 2:59 PM	Not Reported
34	N025881-005A	SAMP	200	Hexavalent Chromium	09/13/17 3:09 PM	Reported
35	N025881-006A	SAMP	1000	Hexavalent Chromium	09/13/17 3:19 PM	Reported
36	N025881-007A	SAMP	50	Hexavalent Chromium	09/13/17 3:28 PM	Reported
37	N025881-008A	SAMP	20	Hexavalent Chromium	09/13/17 3:38 PM	Reported
38	N025881-009A	SAMP	100	Hexavalent Chromium	09/13/17 3:47 PM	Reported
39	CCV-4	CCV1	1	Hexavalent Chromium	09/13/17 3:57 PM	Reported
40	CCB-4	CCB	1	Hexavalent Chromium	09/13/17 4:06 PM	Reported
41	N025881-010A	SAMP	1000	Hexavalent Chromium	09/13/17 4:16 PM	Reported
42	N025881-011A	SAMP	20	Hexavalent Chromium	09/13/17 4:25 PM	Reported

INJECTION LOG: 170913A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-5	CCV	1	Hexavalent Chromium	09/13/17 4:35 PM	Reported
44	CCB-5	CCB	1	Hexavalent Chromium	09/13/17 4:44 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170913A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**14/Sep/17 08:31:26**
No. of Injections:	**47**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/13/2017 09:23	Finished	BLANK
11	BLANK	2	1000	Unknown		09/13/2017 09:34	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/13/2017 09:44	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/13/2017 09:53	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/13/2017 10:03	Finished	CCB R170815A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/13/2017 10:12	Finished	MB R170815A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/13/2017 10:22	Finished	LCS, IWST-170622D
17	N025871-001A,SAMF	9	1000	Unknown		09/13/2017 10:43	Finished	SAMP,10mL
18	N025871-001ADUP,D	10	1000	Unknown		09/13/2017 10:54	Finished	DUP,10mL
19	N025871-001AMS,MS	11	1000	Unknown		09/13/2017 11:03	Finished	MS (1ppb), IWST-170622D,10
20	N025871-001AMSD,M	12	1000	Unknown		09/13/2017 11:13	Finished	MSD (1ppb), IWST-170622D,1(
21	CCV-2,CCV1,1,	13	1000	Unknown		09/13/2017 11:22	Finished	CCV @10ppb, IWST-170622C
22	CCB-2,CCB,1,	14	1000	Unknown		09/13/2017 11:32	Finished	CCB R170815A
23	N025788-001A,SAMF	16	1000	Unknown		09/13/2017 11:49	Finished	SAMP,10mL
24	N025788-001AMS,MS	17	1000	Unknown		09/13/2017 12:00	Finished	MS (5ppb), IWST-170622D,10
25	N025788-002A,SAMF	18	1000	Unknown		09/13/2017 12:10	Finished	SAMP,0.1>10mL
26	N025788-002AMS,MS	19	1000	Unknown		09/13/2017 12:20	Finished	MS (5ppb), IWST-170622D,0.1
27	CCV-3,CCV,1,	21	1000	Unknown		09/13/2017 13:07	Finished	CCV @5ppb, IWST-170622C
28	CCB-3,CCB,1,	22	1000	Unknown		09/13/2017 13:18	Finished	CCB R170815A
29	N025881-001A,SAMF	1	1000	Unknown		09/13/2017 14:15	Finished	SAMP,2>10mL
30	N025881-002A,SAMF	2	1000	Unknown		09/13/2017 14:26	Finished	SAMP,10mL
31	N025881-003A,SAMF	3	1000	Unknown		09/13/2017 14:35	Finished	SAMP,5>10mL
32	N025881-004A,SAMF	4	1000	Unknown		09/13/2017 14:45	Finished	SAMP,2>10mL
33	N025881-003A,SAMF	5	1000	Unknown		09/13/2017 14:59	Finished	SAMP,2>10mL
34	N025881-005A,SAMF	6	1000	Unknown		09/13/2017 15:09	Finished	SAMP,0.05>10mL
35	N025881-006A,SAMF	7	1000	Unknown		09/13/2017 15:19	Finished	SAMP,0.01>10mL
36	N025881-007A,SAMF	8	1000	Unknown		09/13/2017 15:28	Finished	SAMP,0.2>10mL
37	N025881-008A,SAMF	9	1000	Unknown		09/13/2017 15:38	Finished	SAMP,0.05>10mL
38	N025881-009A,SAMF	10	1000	Unknown		09/13/2017 15:47	Finished	SAMP,0.1>10mL
39	CCV-4,CCV1,1,	11	1000	Unknown		09/13/2017 15:57	Finished	CCV @10ppb, IWST-170622C
40	CCB-4,CCB,1,	12	1000	Unknown		09/13/2017 16:06	Finished	CCB R170815A
41	N025881-010A,SAMF	13	1000	Unknown		09/13/2017 16:16	Finished	SAMP,0.01>10mL
42	N025881-011A,SAMF	14	1000	Unknown		09/13/2017 16:25	Finished	SAMP,0.5>10mL
43	CCV-5,CCV,1,	15	1000	Unknown		09/13/2017 16:35	Finished	CCV @5ppb, IWST-170622C
44	CCB-5,CCB,1,	16	1000	Unknown		09/13/2017 16:44	Finished	CCB R170815A
45	SHUTDOWN	17	1000	Unknown		09/13/2017 16:54	Finished	
46	Eluent: R170913A	18	1000	Unknown		n.a.	Finished	Eluent
47	PCR: R170913B	19	1000	Unknown		n.a.	Finished	Post-Column Reagent

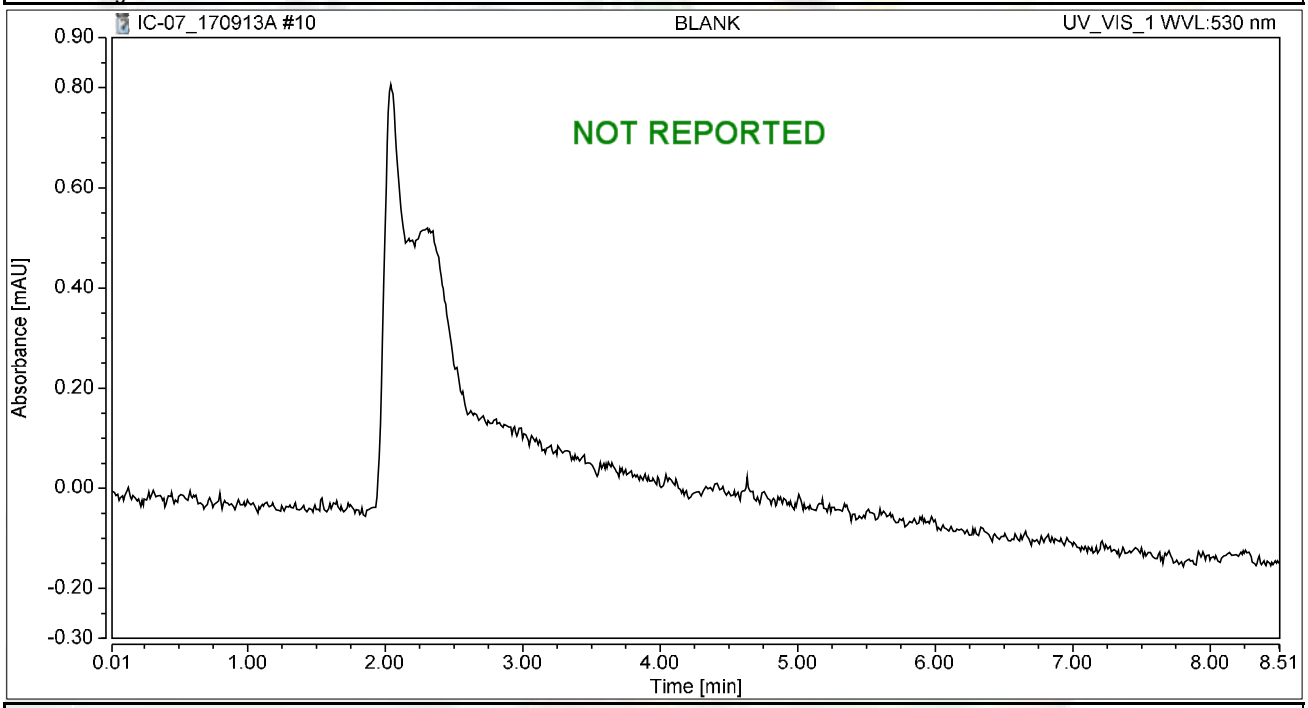
rba 9/15/2017

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 09:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

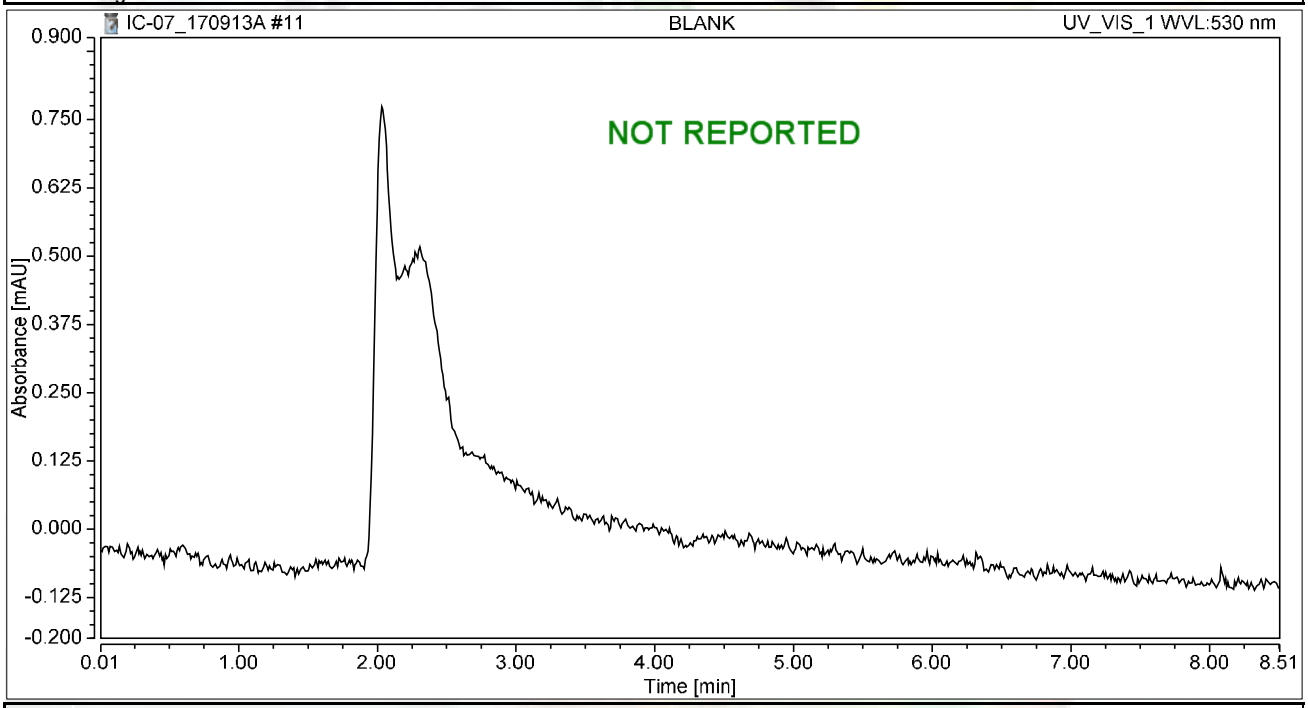
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

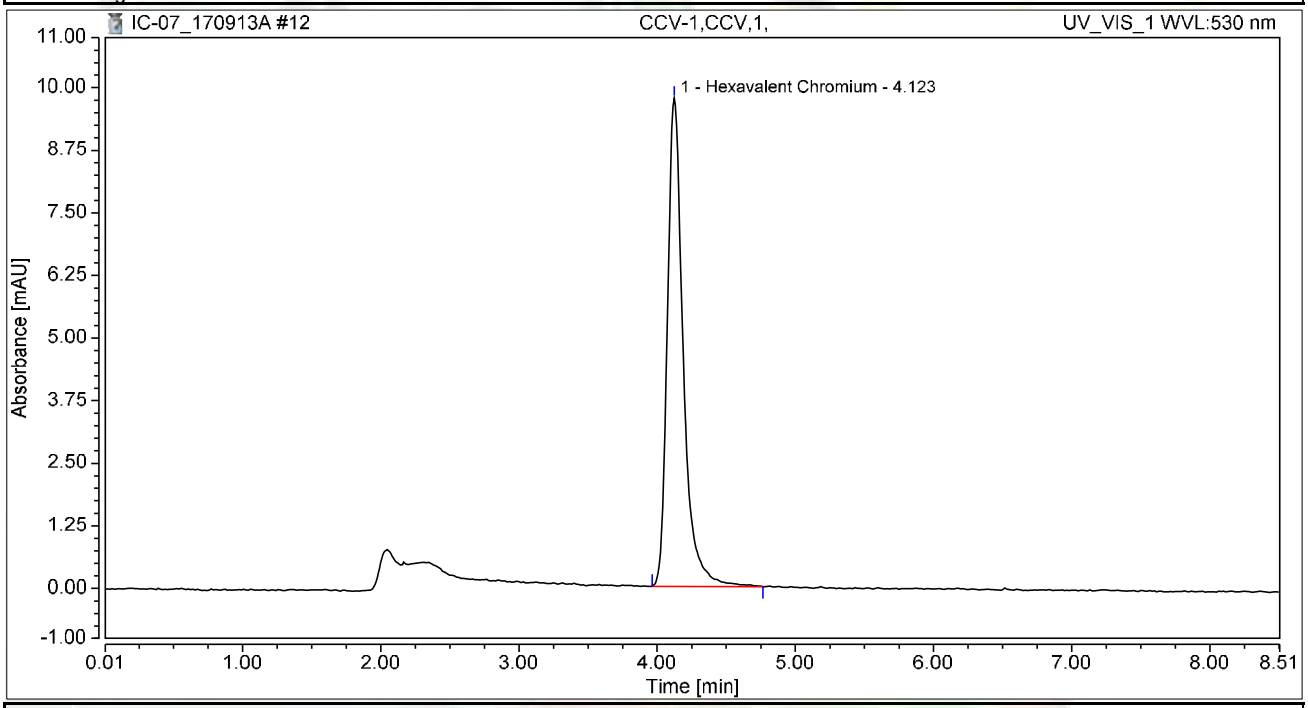
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 09:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

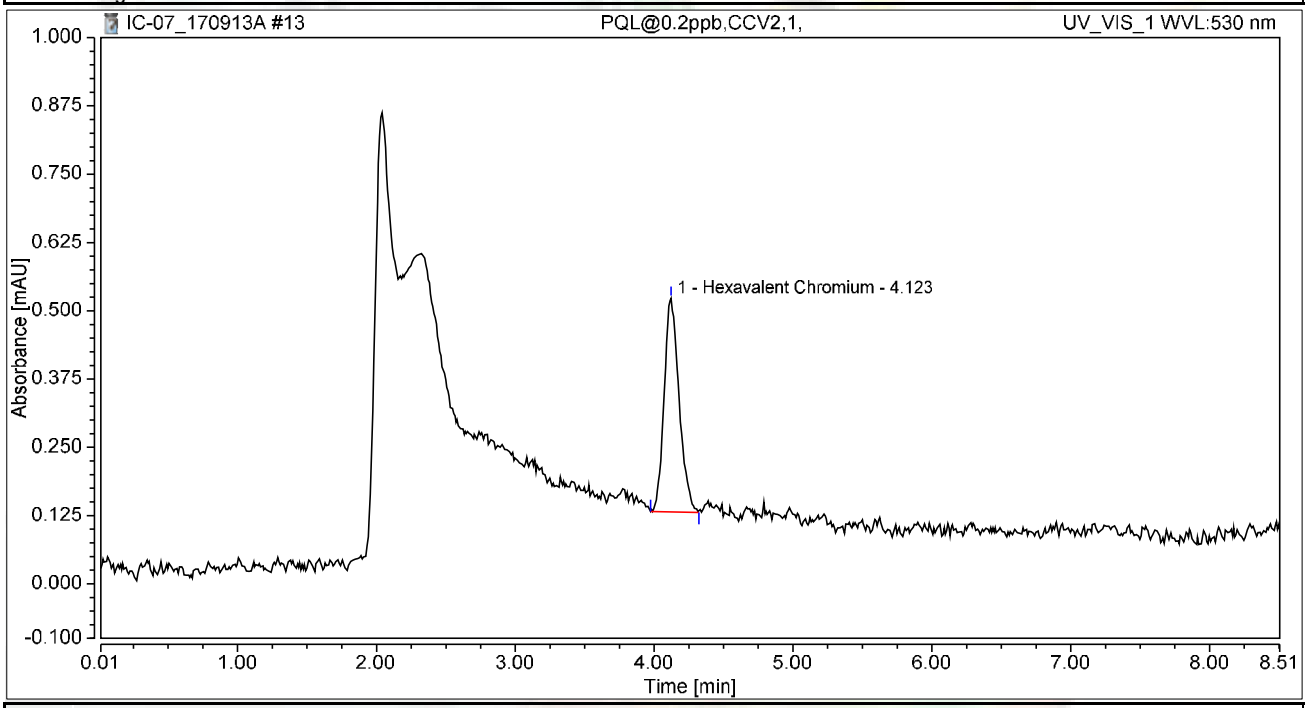
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	1.299	9.751	100.00	100.00	5.0050
Total:			**1.299**	**9.751**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

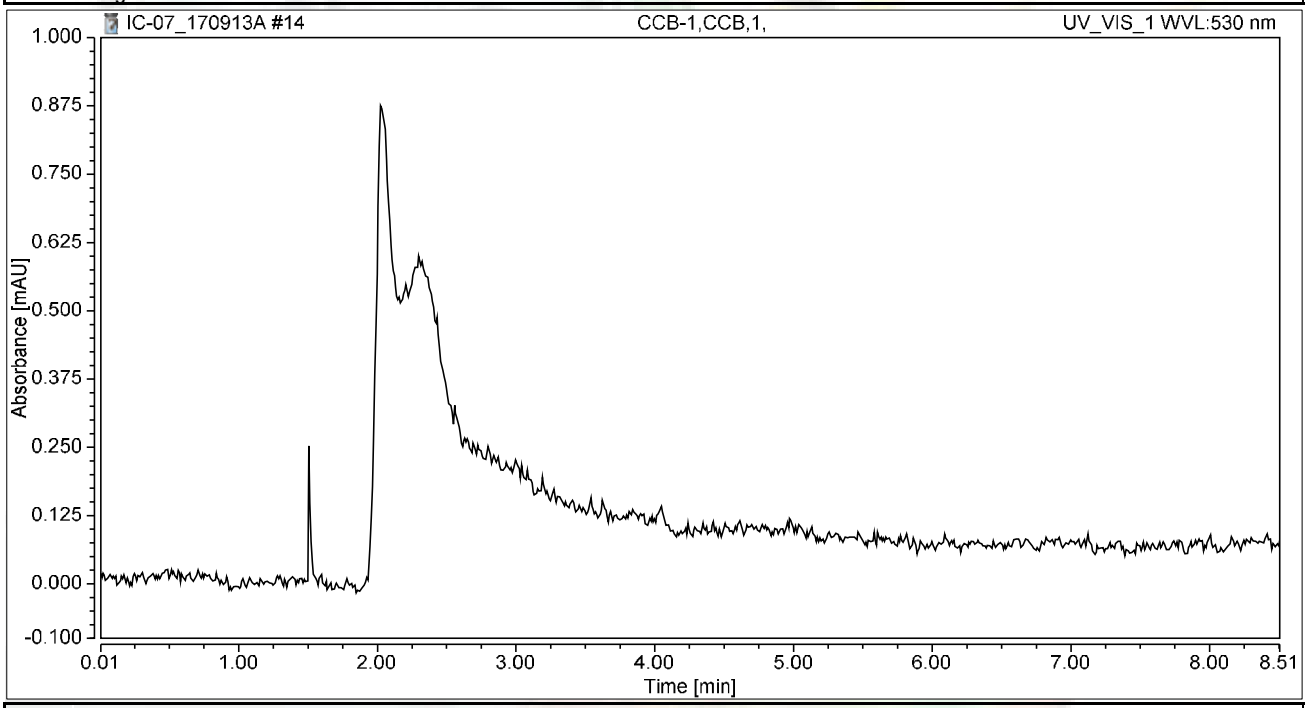
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	0.049	0.391	100.00	100.00	0.1874
Total:			**0.049**	**0.391**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

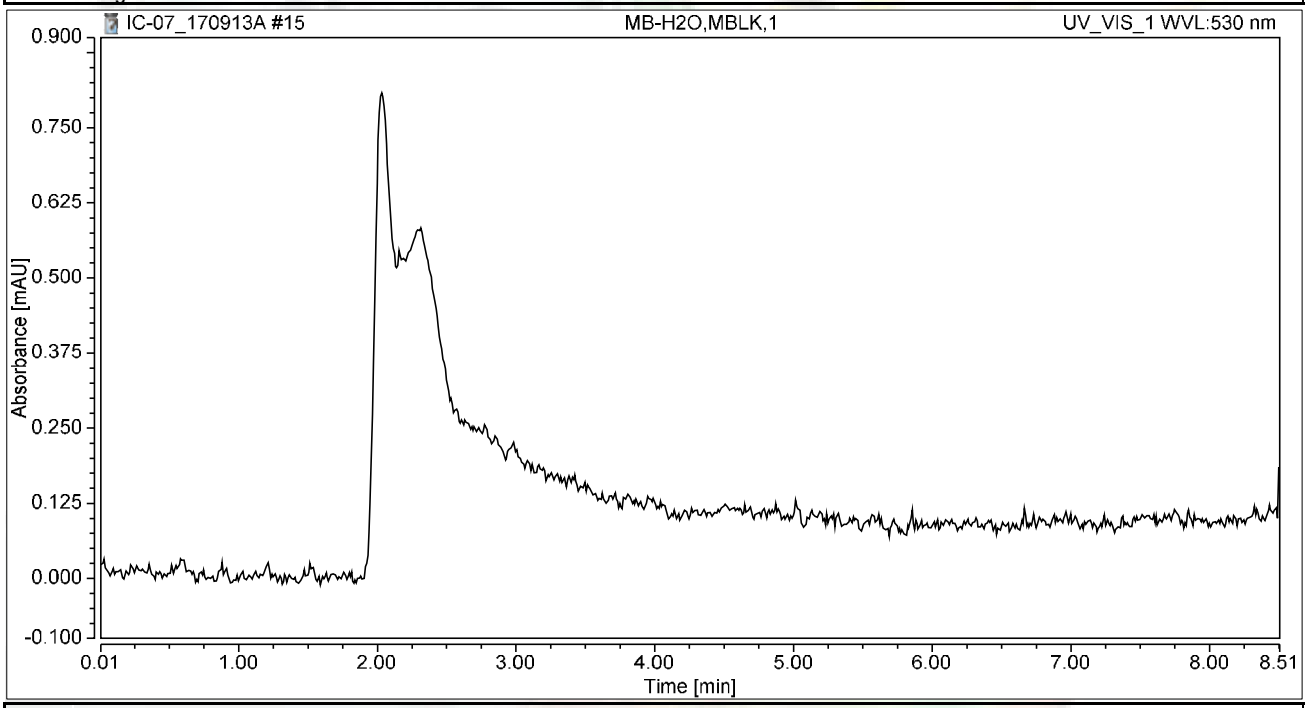
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 10:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

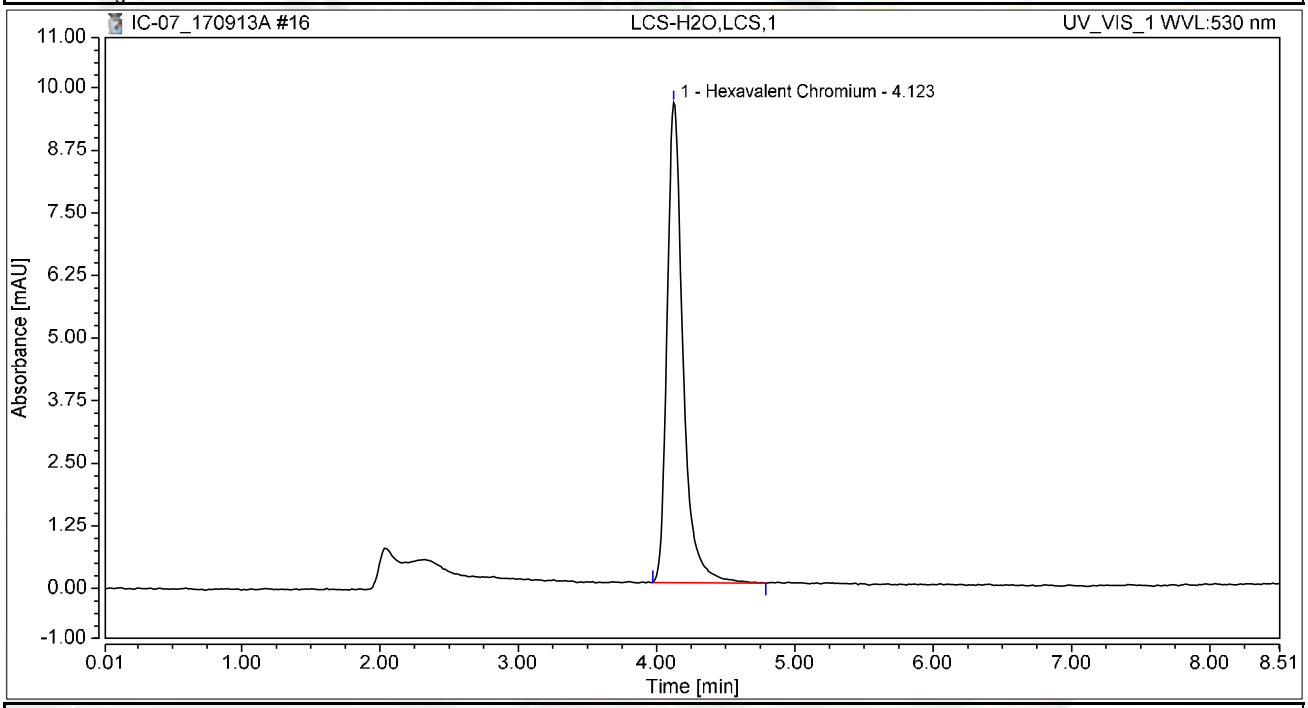
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

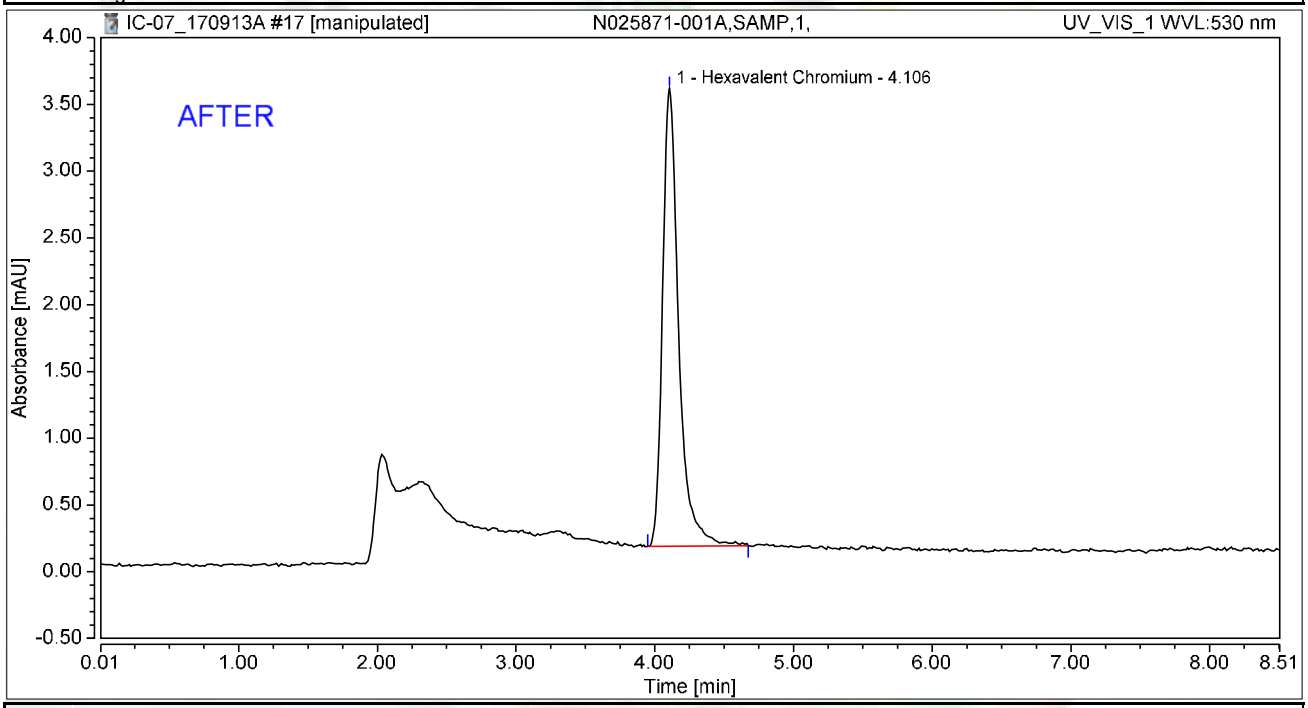
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	1.280	9.588	100.00	100.00	4.9321
Total:			**1.280**	**9.588**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025871-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	0.464	3.427	100.00	100.00	1.7860
Total:			**0.464**	**3.427**	**100.00**	**100.00**	

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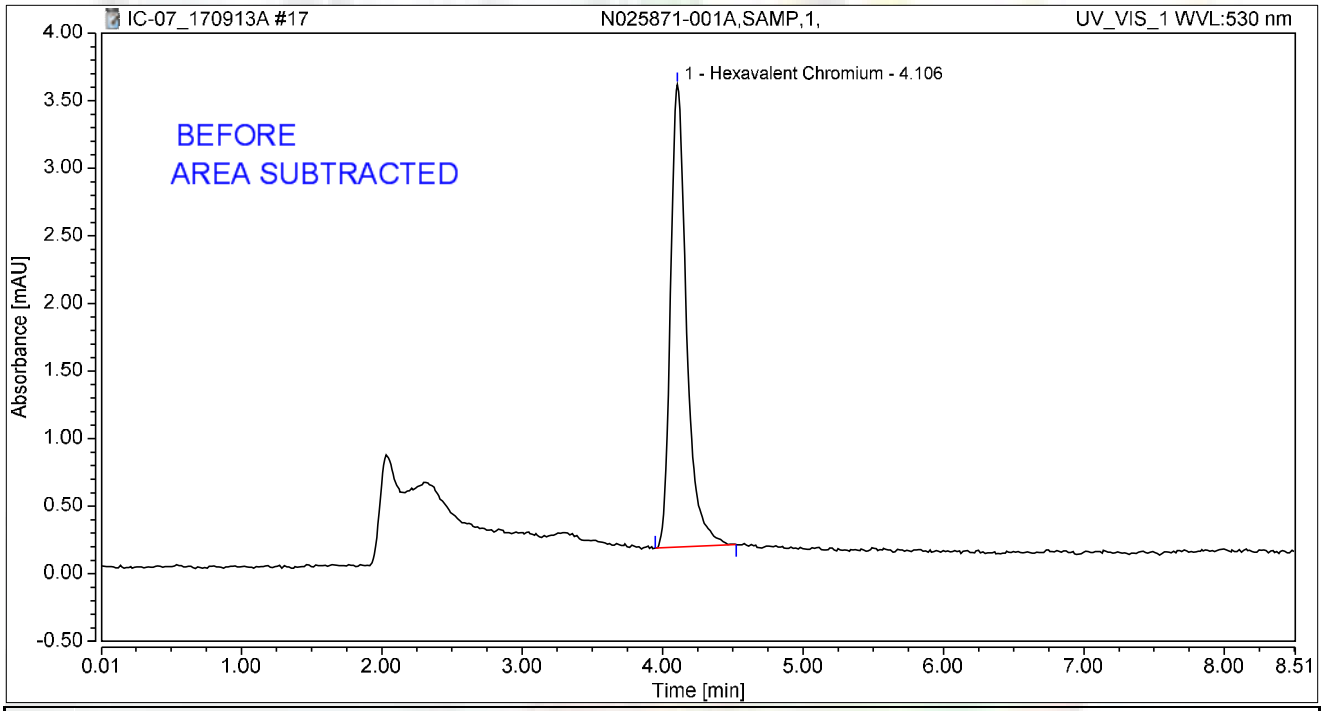
Reviewed
Mandy 9/21/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025871-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	0.455	3.422	100.00	100.00	1.7526
Total:			**0.455**	**3.422**	**100.00**	**100.00**	

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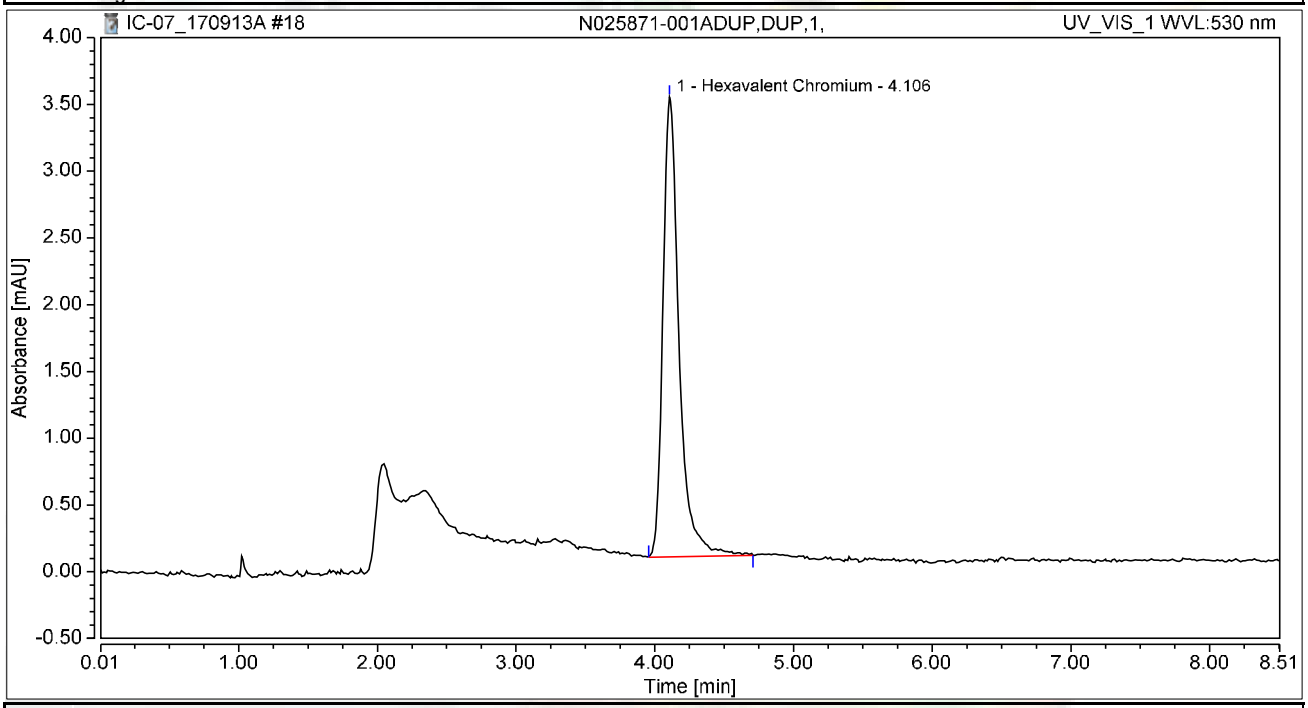
Chromatogram and Results

Injection Details

Injection Name:	**N025871-001ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 10:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

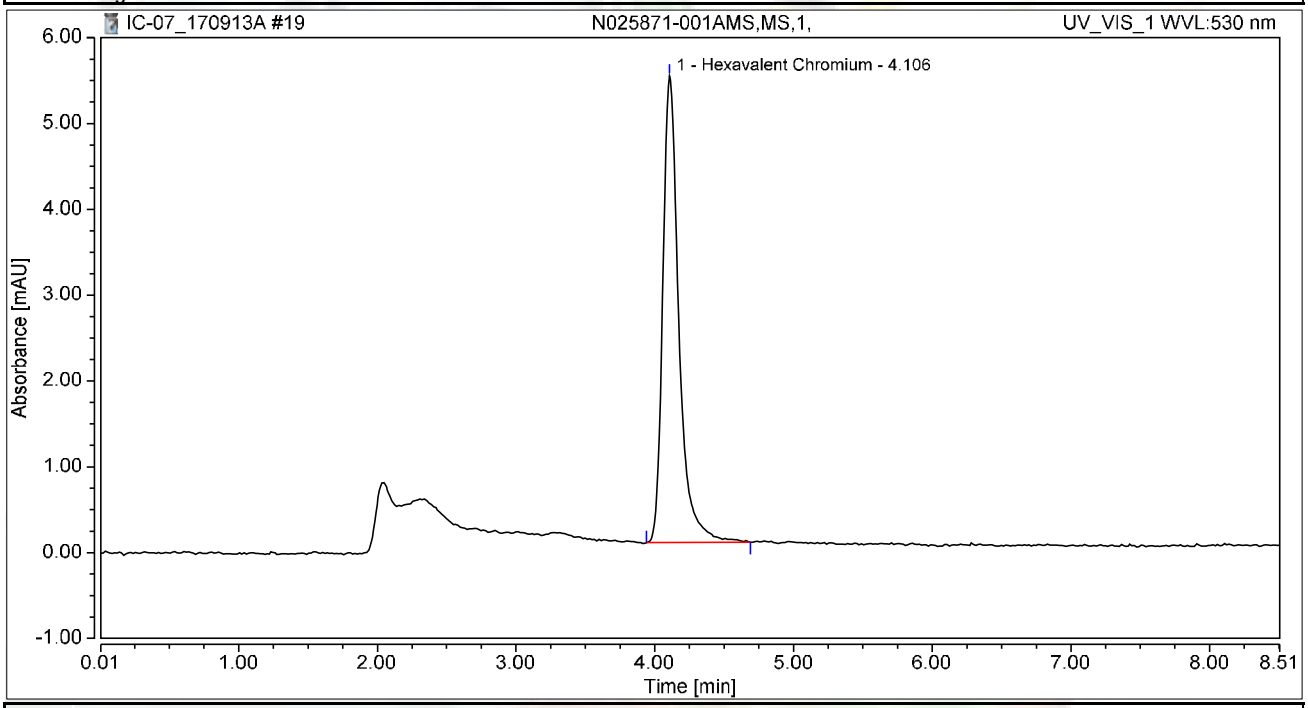
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	0.466	3.442	100.00	100.00	1.7954
Total:			**0.466**	**3.442**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025871-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 11:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

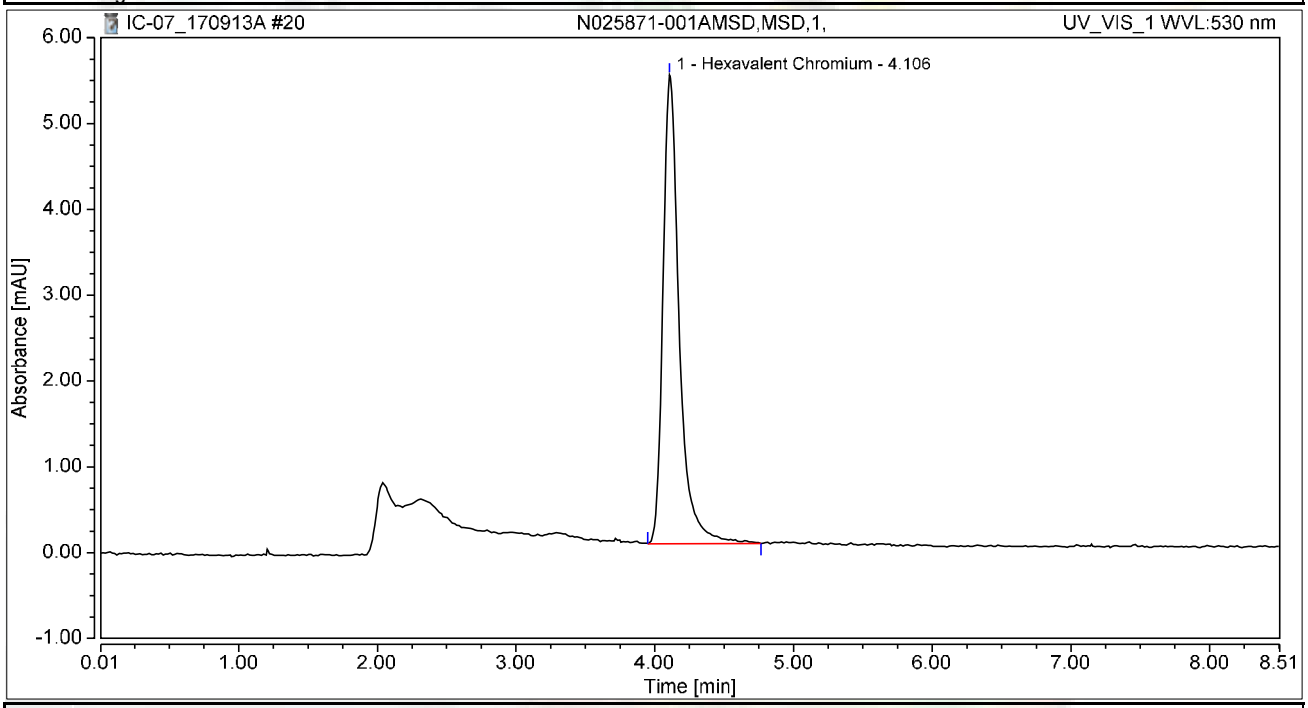
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	0.735	5.438	100.00	100.00	2.8326
Total:			**0.735**	**5.438**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025871-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 11:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

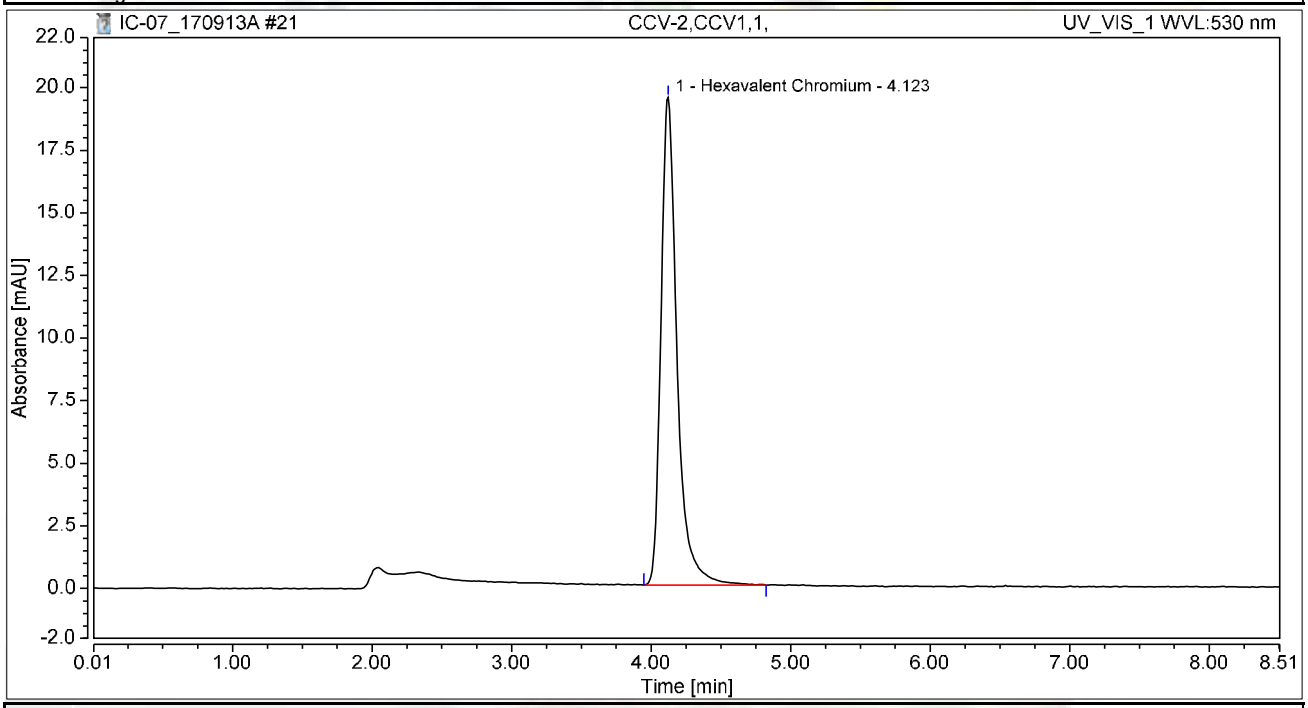
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	0.746	5.462	100.00	100.00	2.8743
Total:			**0.746**	**5.462**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 11:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

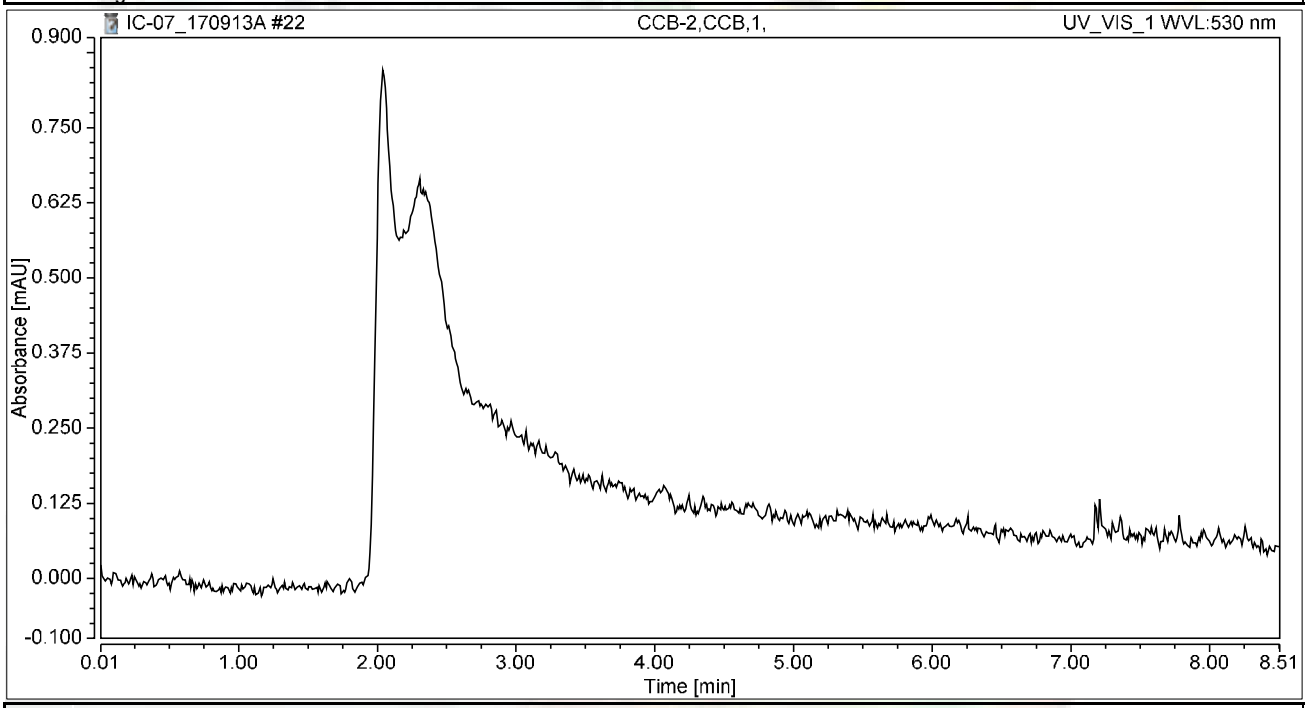
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	2.606	19.473	100.00	100.00	10.0410
Total:			**2.606**	**19.473**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 11:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

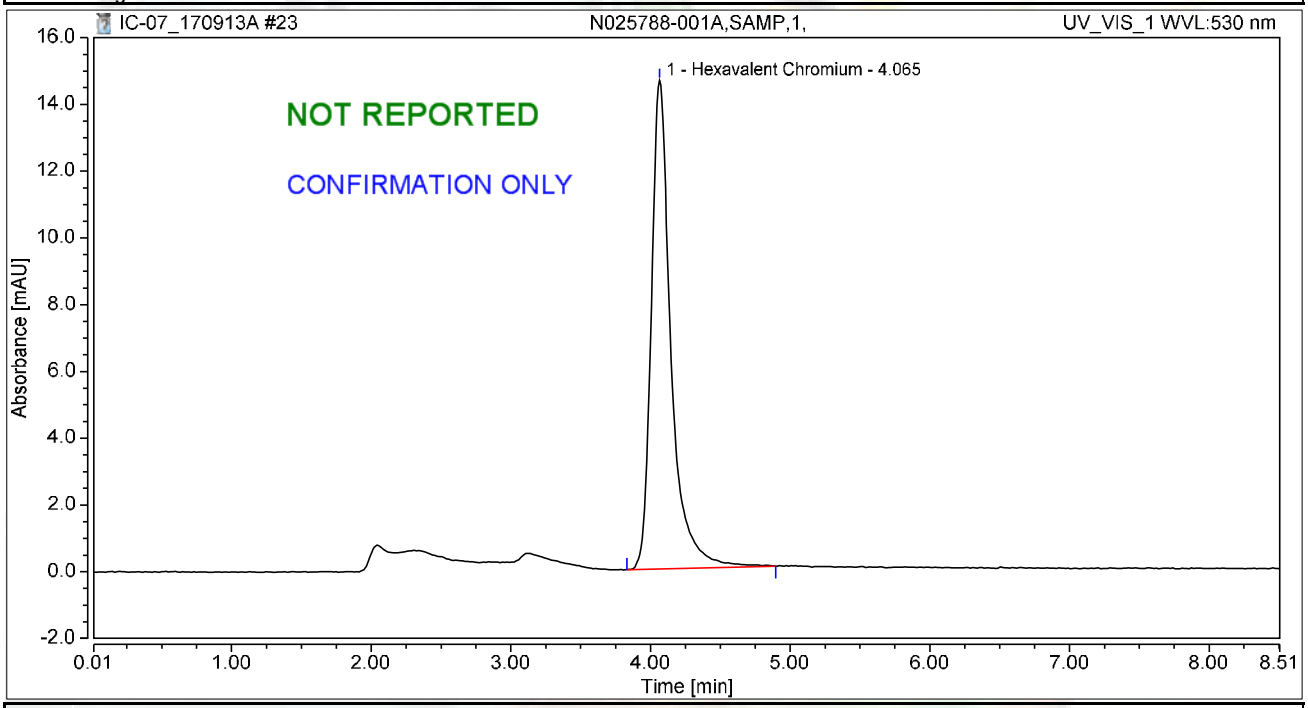
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

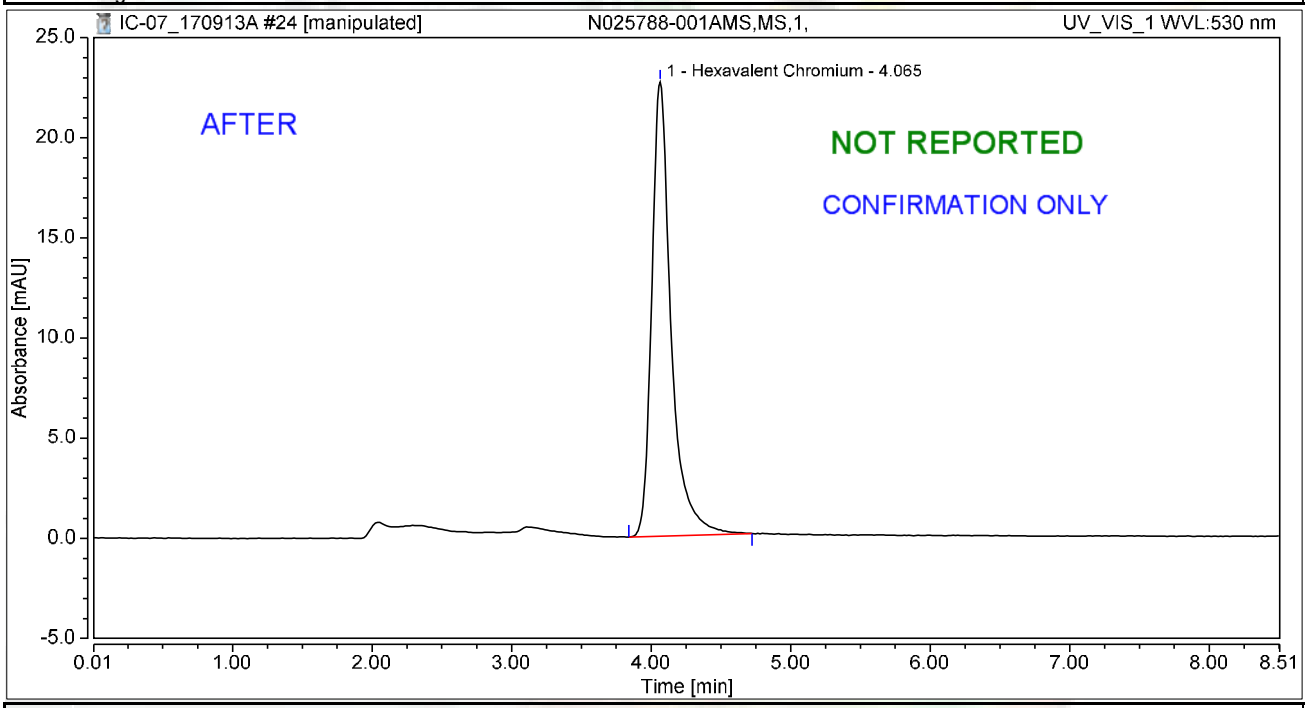
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.393	14.637	100.00	100.00	9.2207
Total:			**2.393**	**14.637**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 12:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.658	22.672	100.00	100.00	14.0925
Total:			**3.658**	**22.672**	**100.00**	**100.00**	

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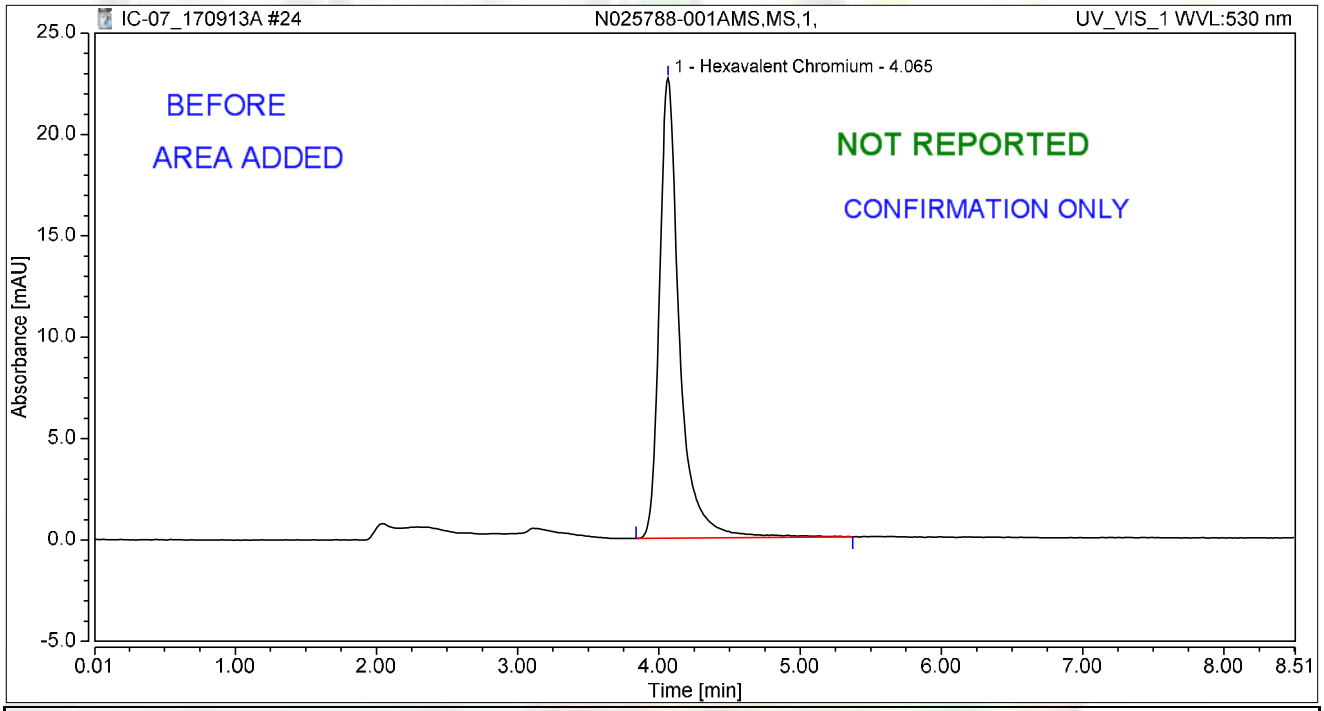
Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 12:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.743	22.700	100.00	100.00	14.4227
Total:			**3.743**	**22.700**	**100.00**	**100.00**	

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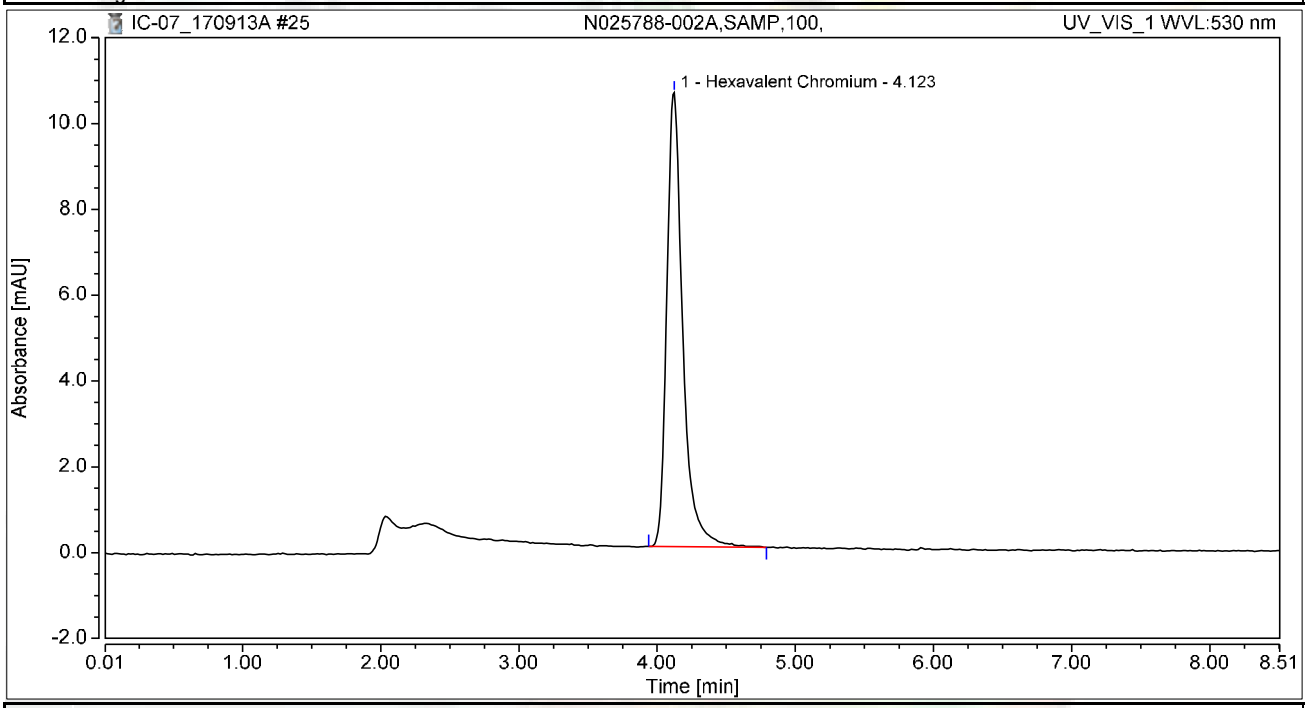
Chromatogram and Results

Injection Details

Injection Name:	**N025788-002A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 12:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

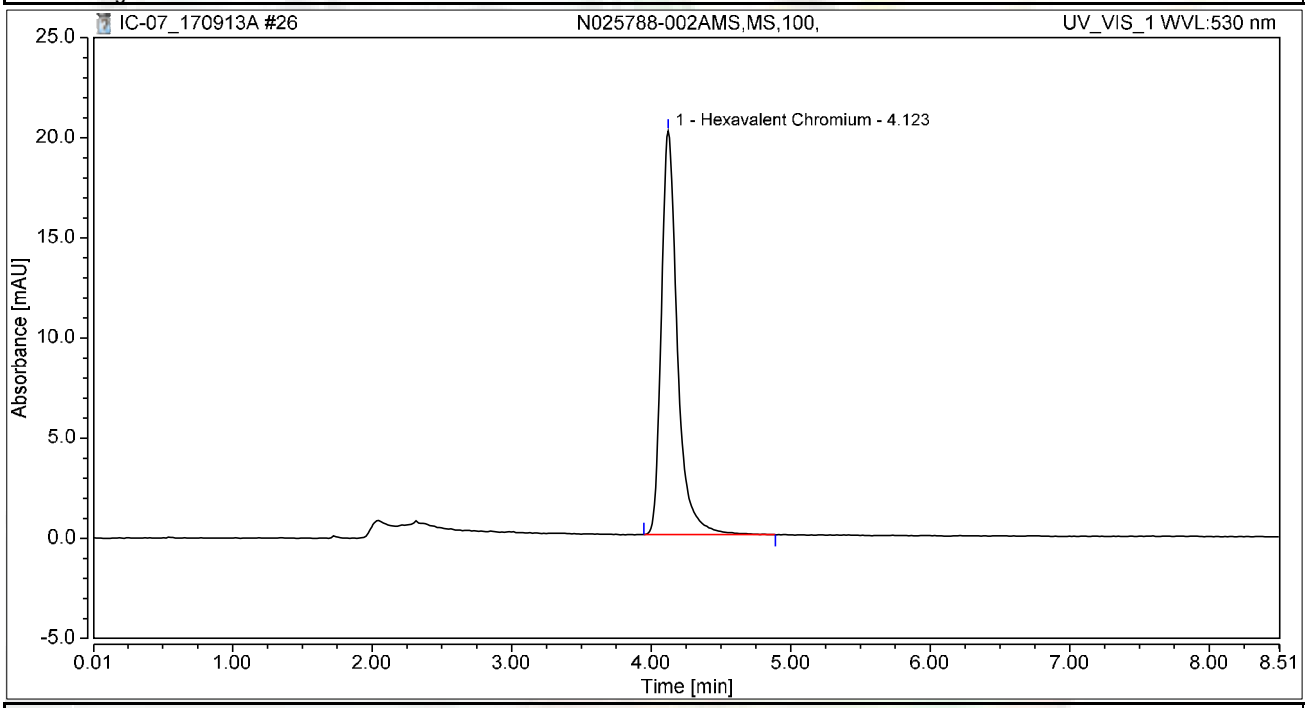
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	1.424	10.575	100.00	100.00	5.4850
Total:			**1.424**	**10.575**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-002AMS,MS,100,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

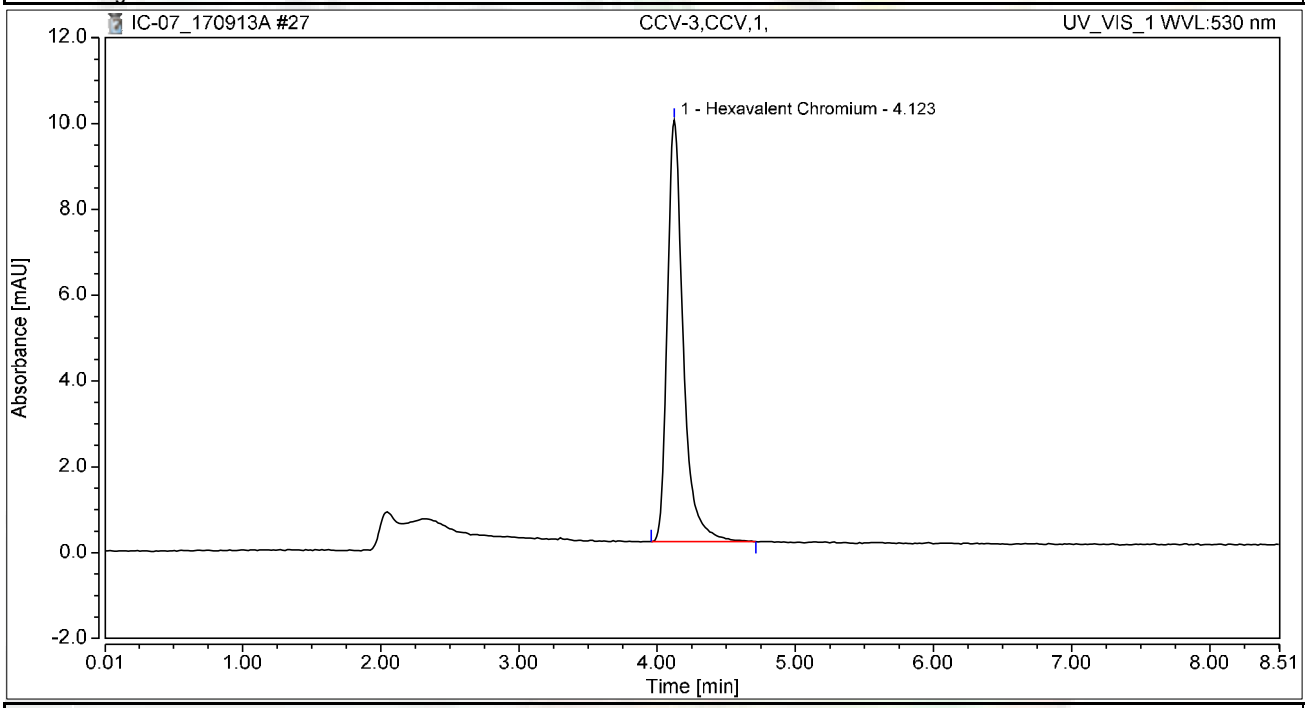
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	2.698	20.143	100.00	100.00	10.3958
Total:			**2.698**	**20.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 13:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

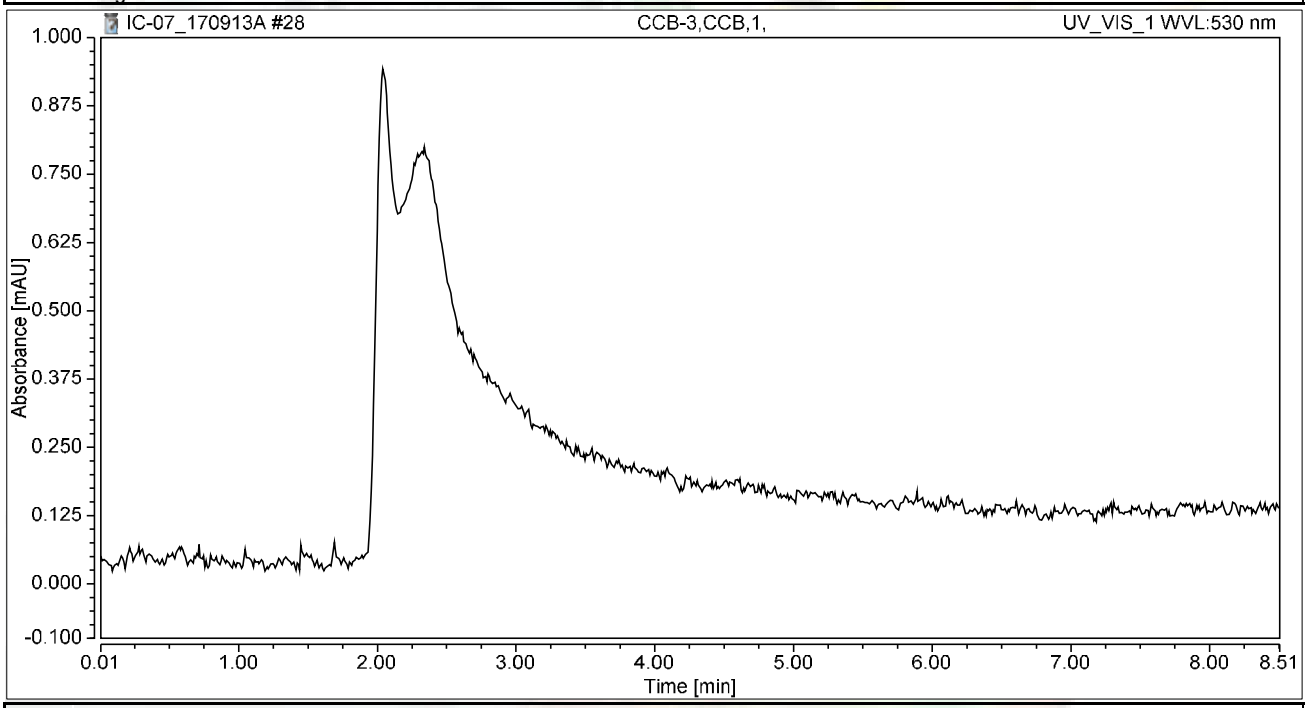
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.123	1.308	9.821	100.00	100.00	5.0409
Total:			**1.308**	**9.821**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 13:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

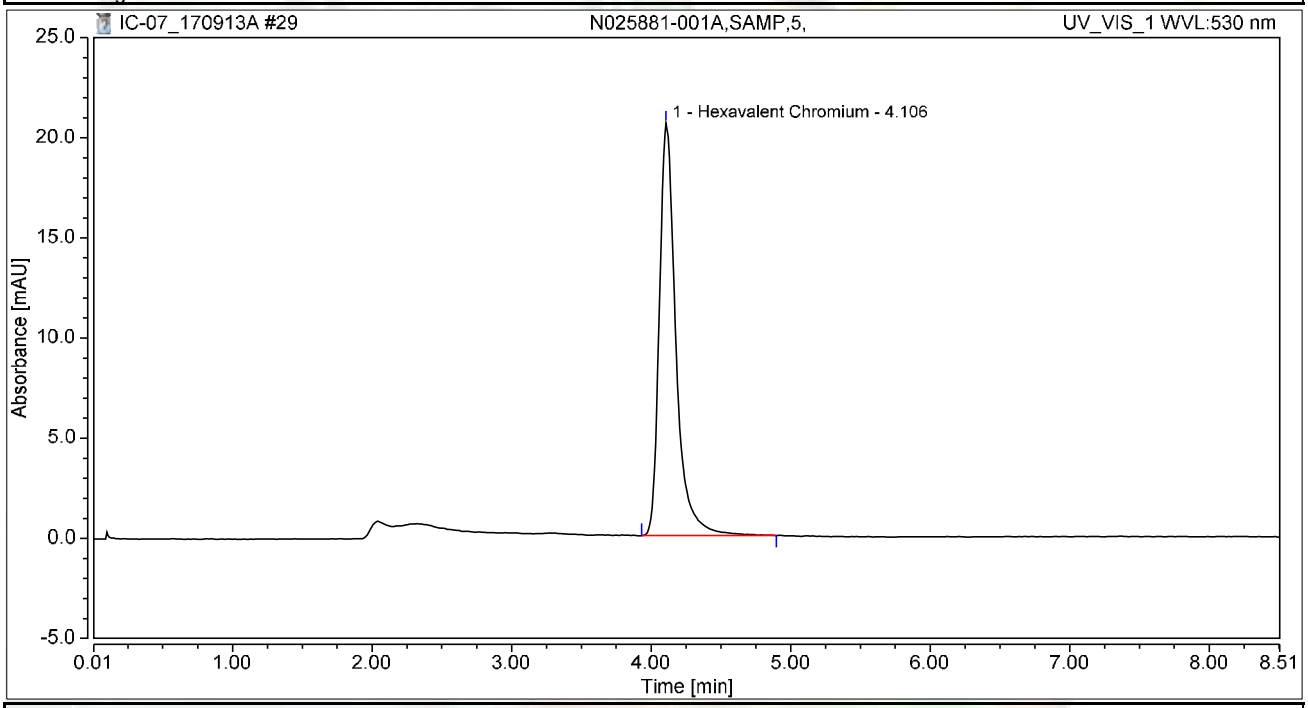
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

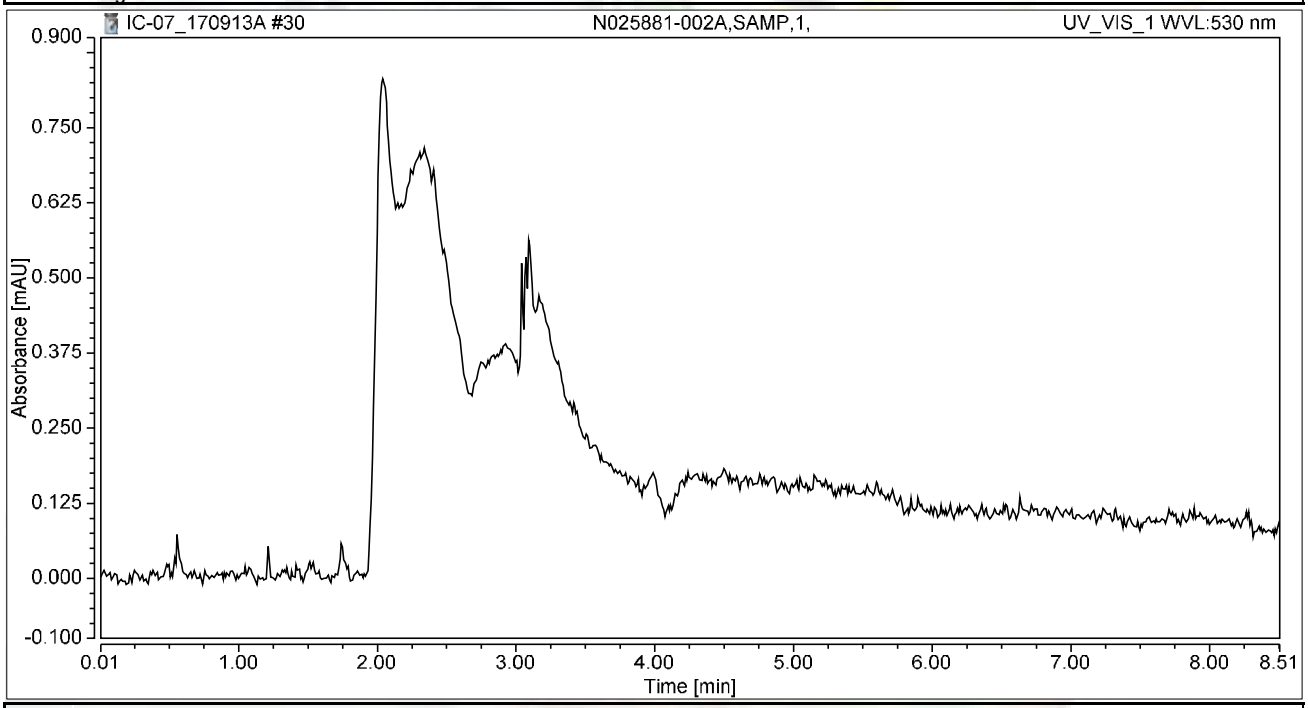
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	2.850	20.598	100.00	100.00	10.9816
Total:			**2.850**	**20.598**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

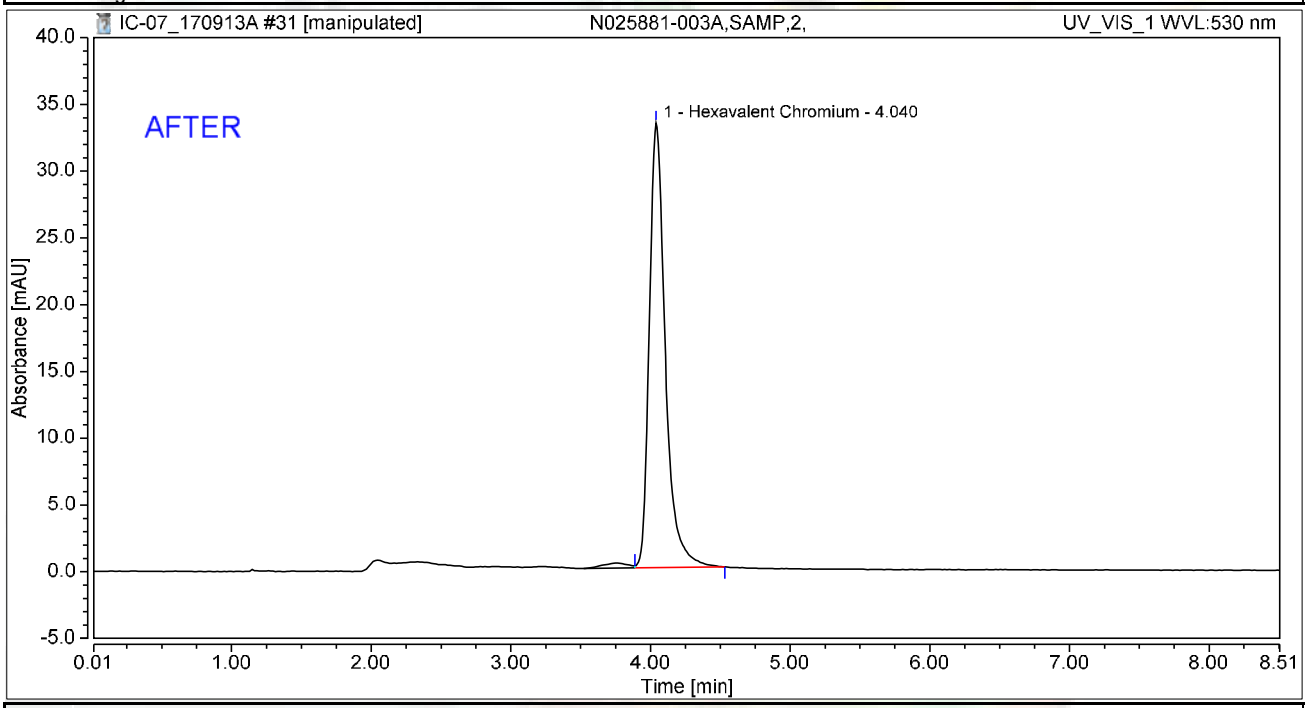
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-003A,SAMP,2,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	4.410	33.288	100.00	100.00	16.9911
Total:			**4.410**	**33.288**	**100.00**	**100.00**	

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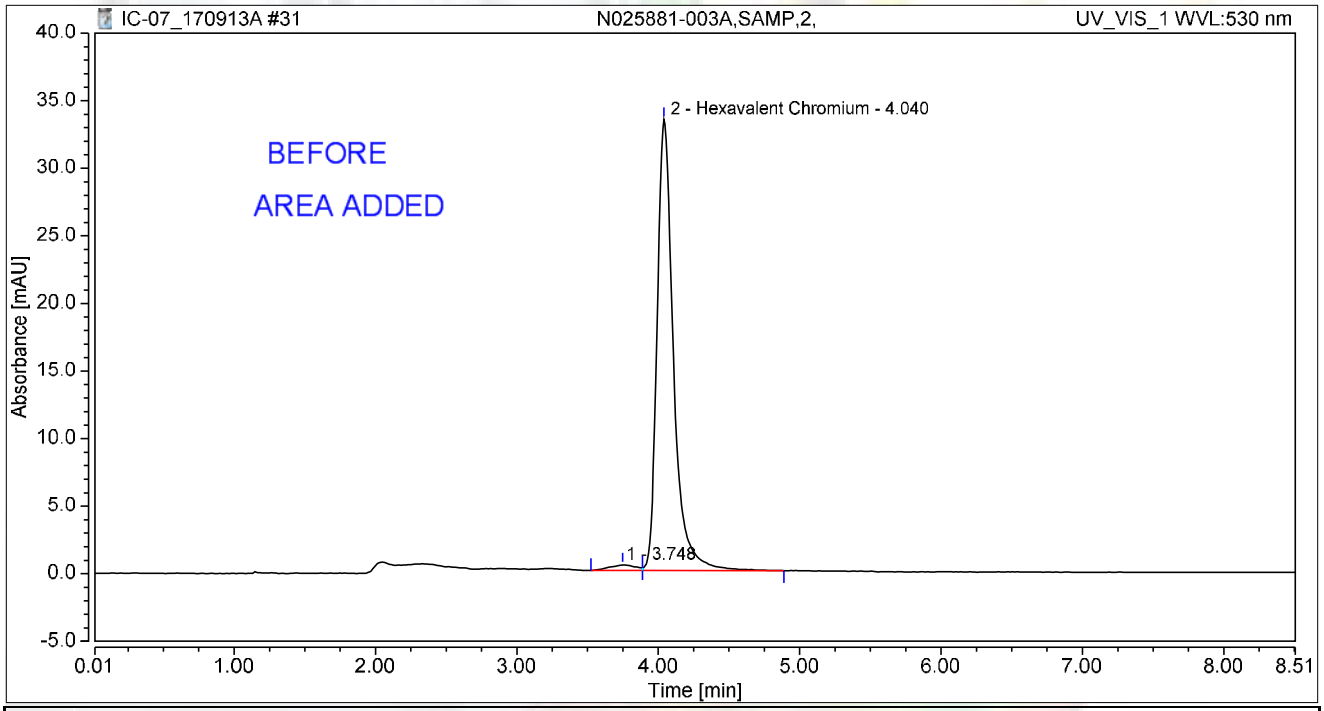
Chromatogram and Results

Injection Details

Injection Name:	**N025881-003A,SAMP,2,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.748	0.084	0.397	1.84	1.18	n.a.
2	Hexavalent Chromium	4.040	4.484	33.354	98.16	98.82	17.2779
Total:			**4.568**	**33.751**	**100.00**	**100.00**	

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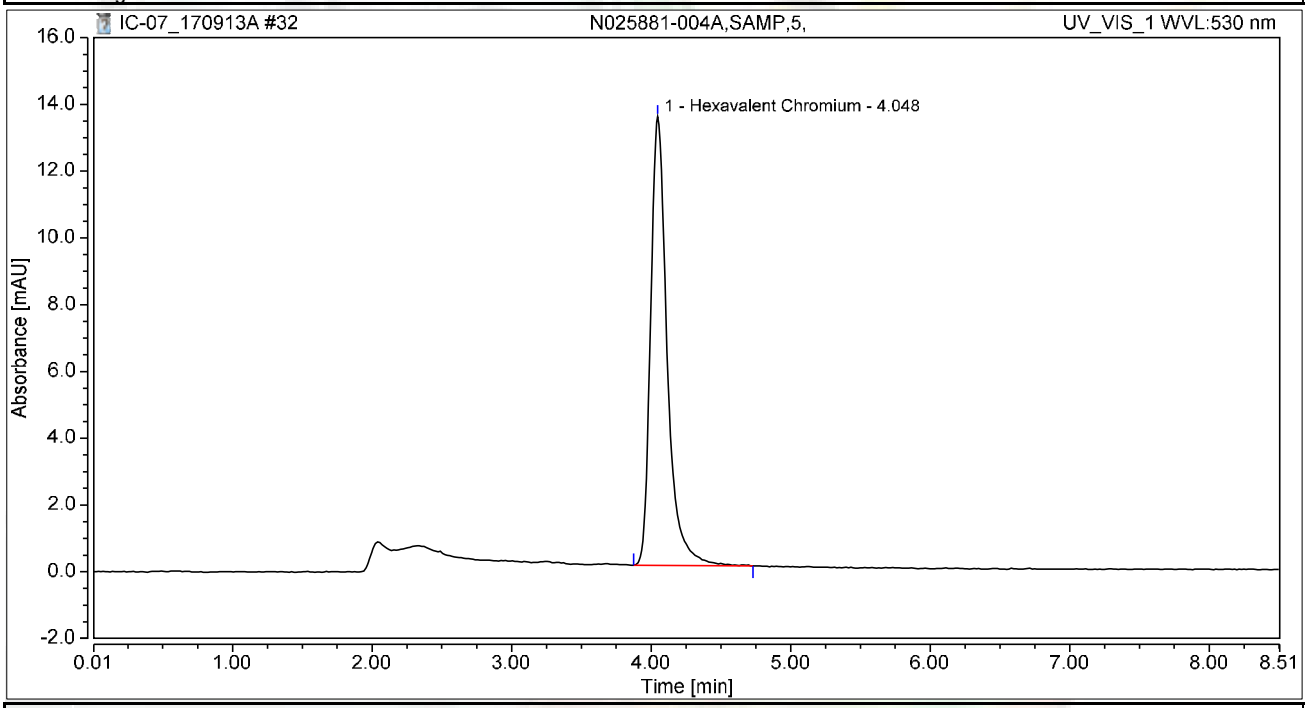
Chromatogram and Results

Injection Details

Injection Name:	**N025881-004A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

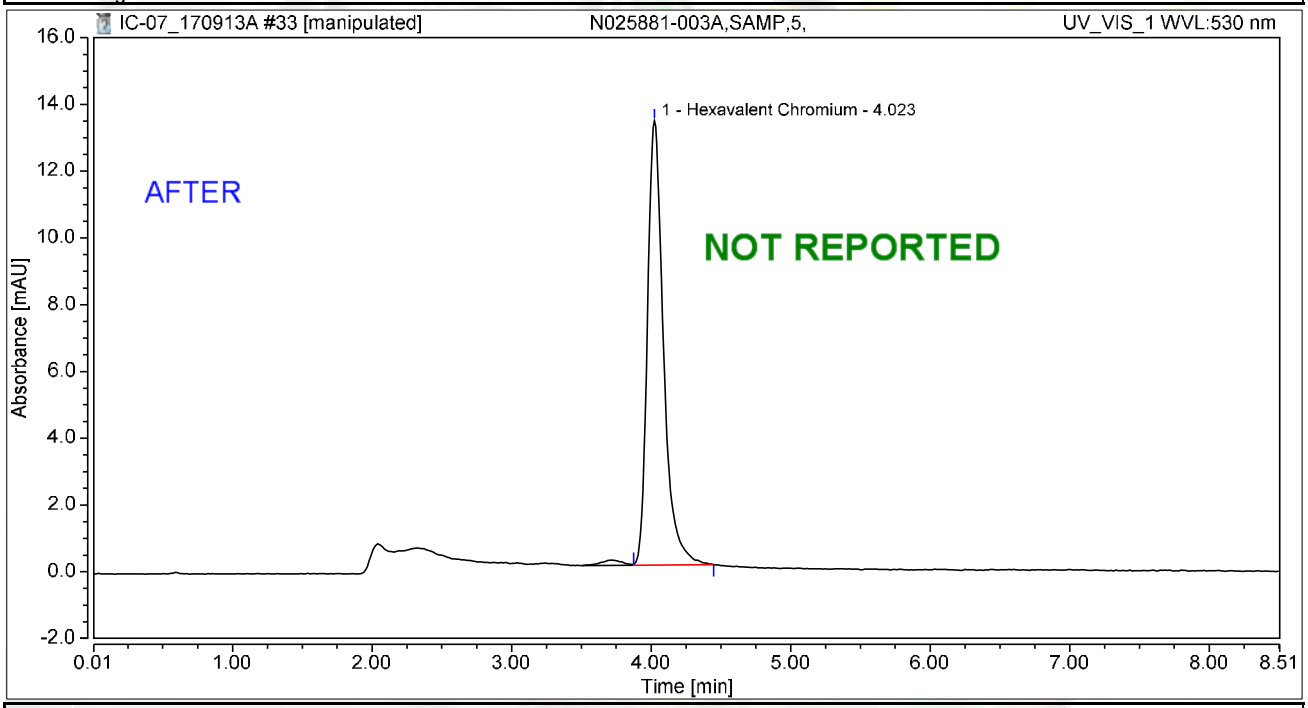
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.864	13.442	100.00	100.00	7.1831
Total:			**1.864**	**13.442**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-003A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	1.779	13.306	100.00	100.00	6.8554
Total:			**1.779**	**13.306**	**100.00**	**100.00**	

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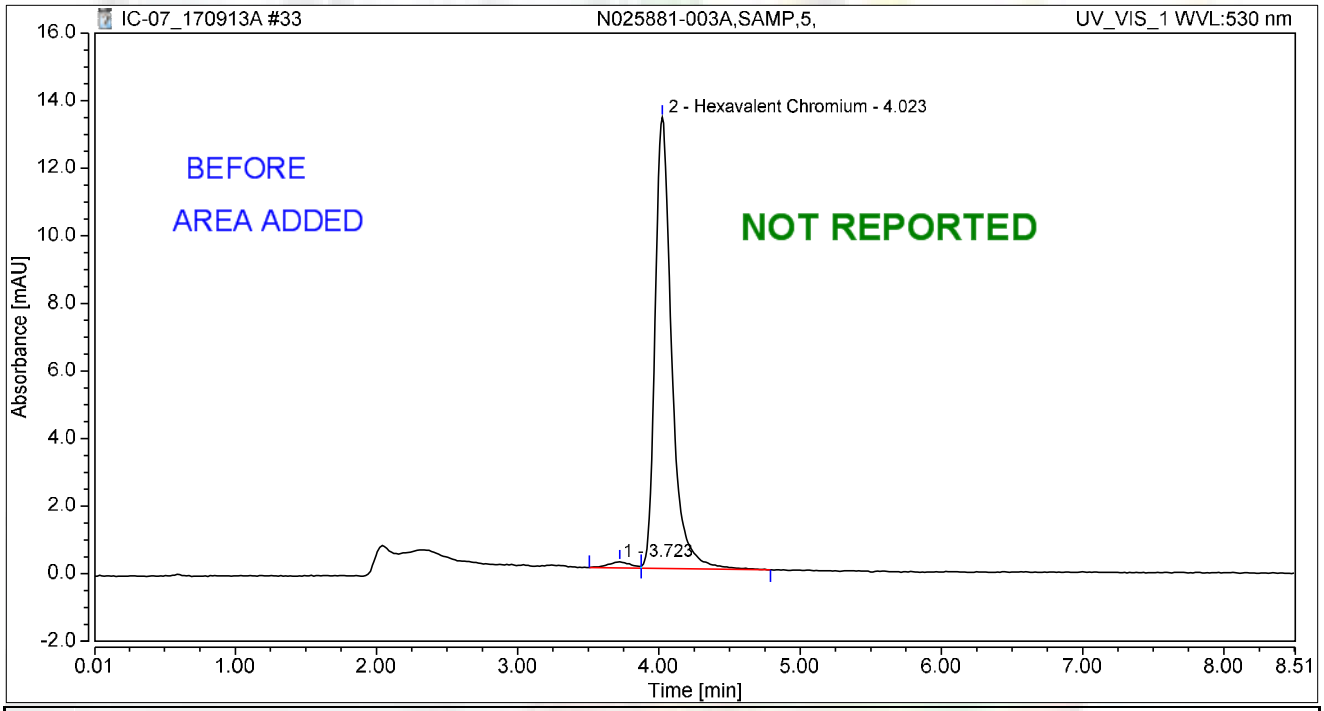
Chromatogram and Results

Injection Details

Injection Name:	**N025881-003A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.723	0.035	0.181	1.86	1.34	n.a.
2	Hexavalent Chromium	4.023	1.822	13.350	98.14	98.66	7.0186
Total:			**1.856**	**13.530**	**100.00**	**100.00**	

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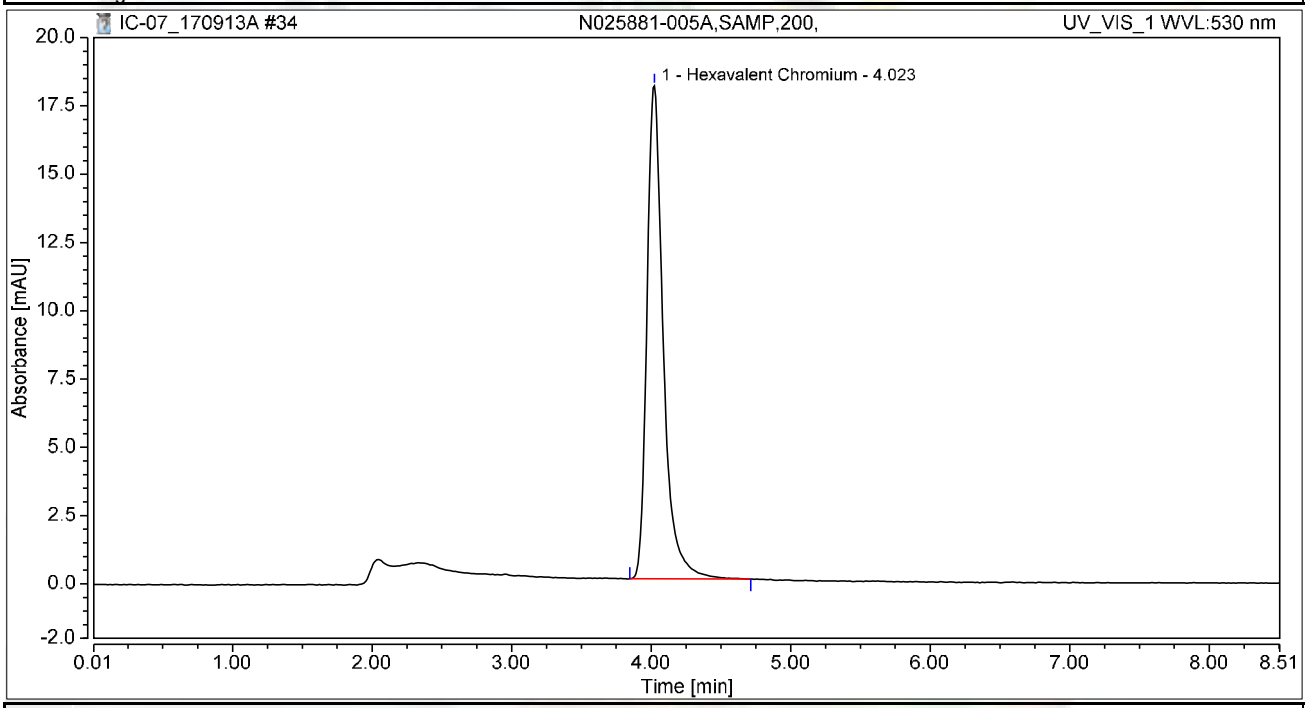
Chromatogram and Results

Injection Details

Injection Name:	**N025881-005A,SAMP,200,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

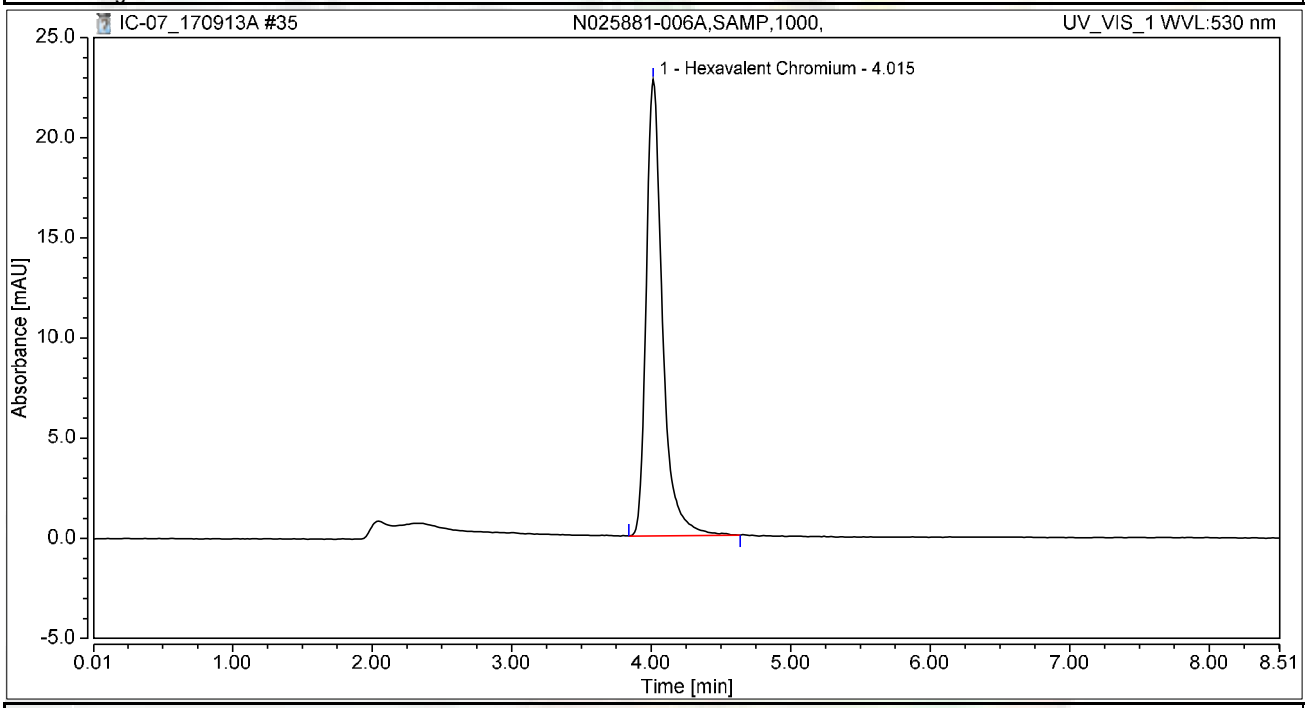
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	2.465	18.058	100.00	100.00	9.4968
Total:			**2.465**	**18.058**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-006A,SAMP,1000,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 15:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

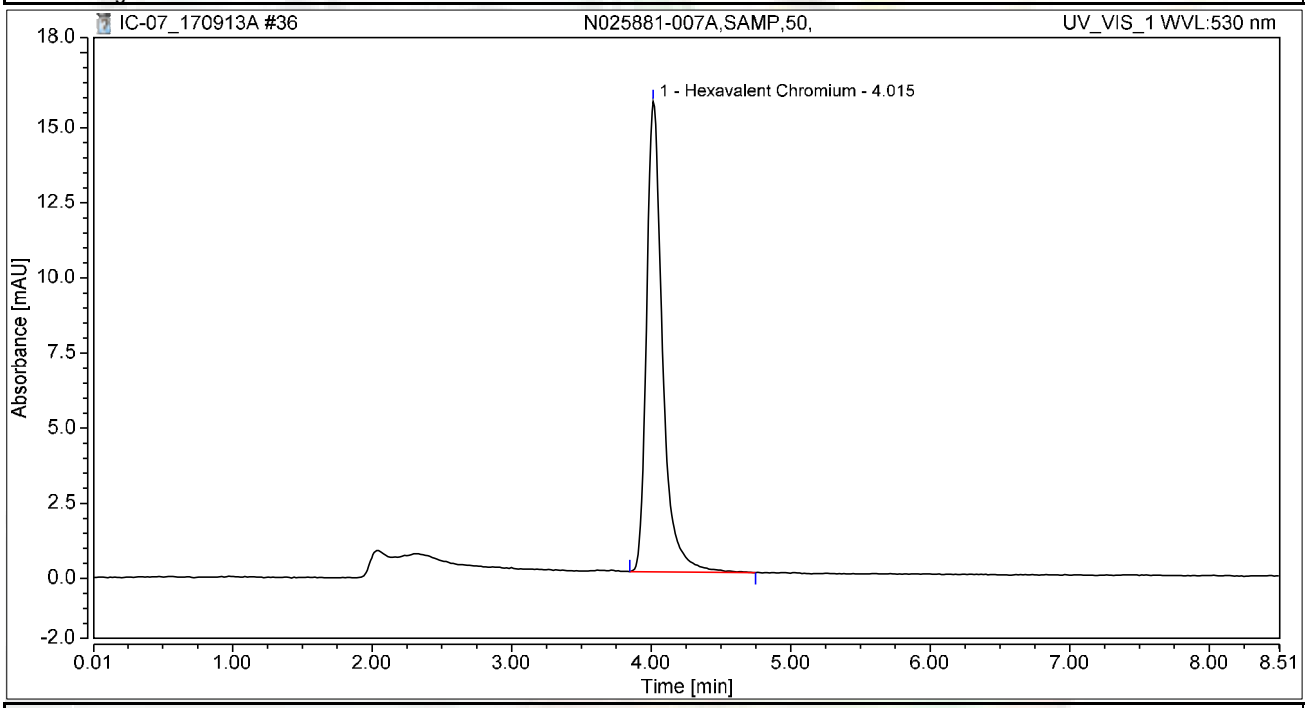
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	3.084	22.772	100.00	100.00	11.8816
Total:			**3.084**	**22.772**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-007A,SAMP,50,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

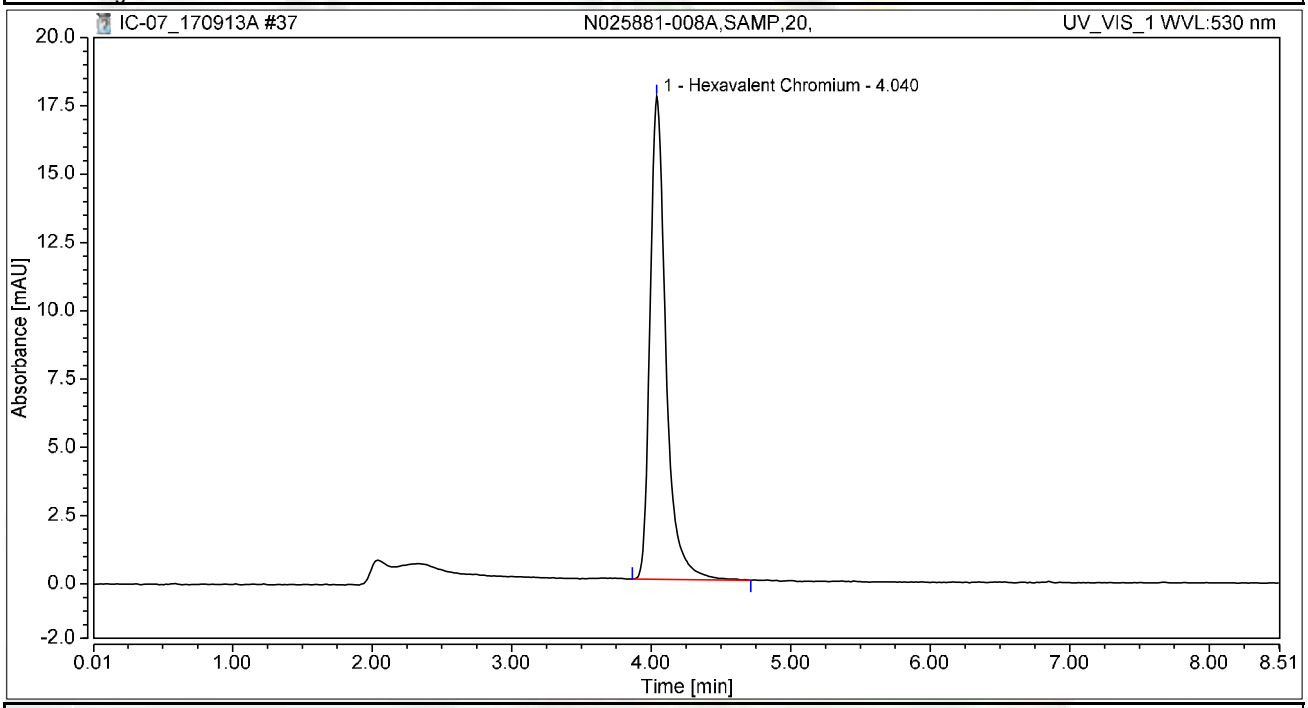
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	2.083	15.642	100.00	100.00	8.0248
Total:			**2.083**	**15.642**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-008A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 15:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

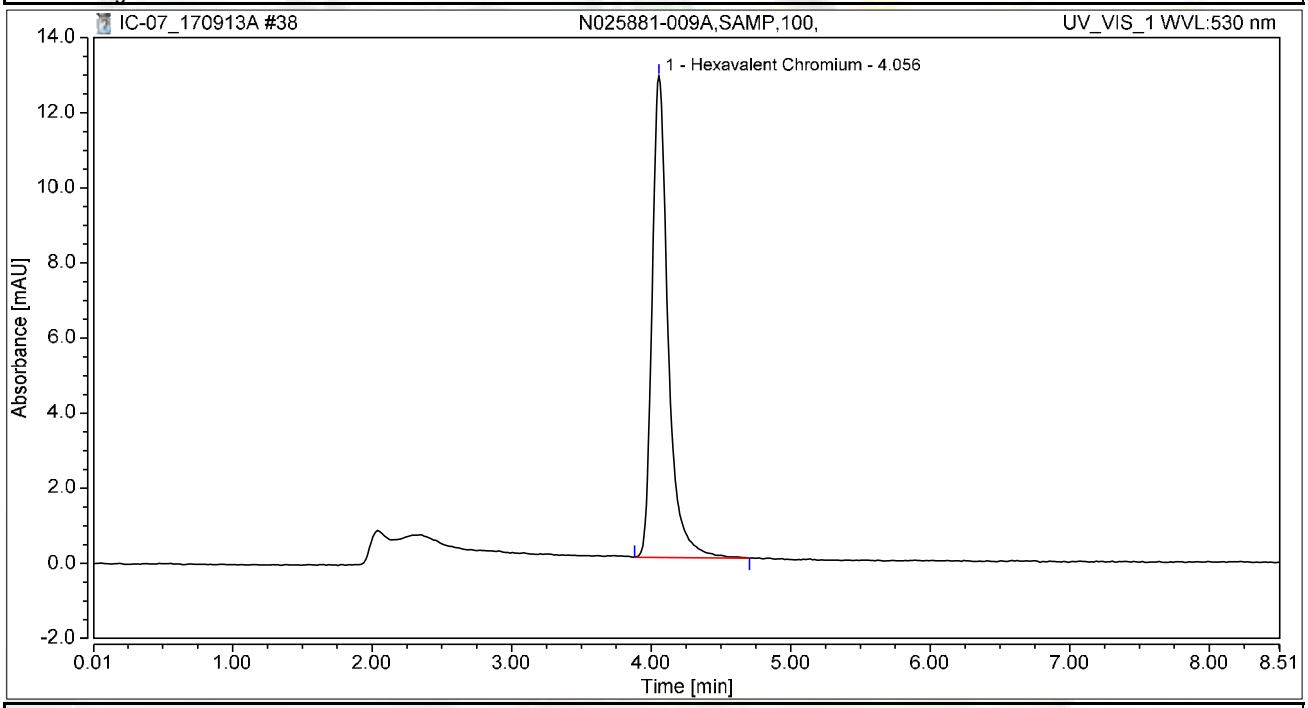
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	2.347	17.680	100.00	100.00	9.0410
Total:			**2.347**	**17.680**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-009A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 15:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

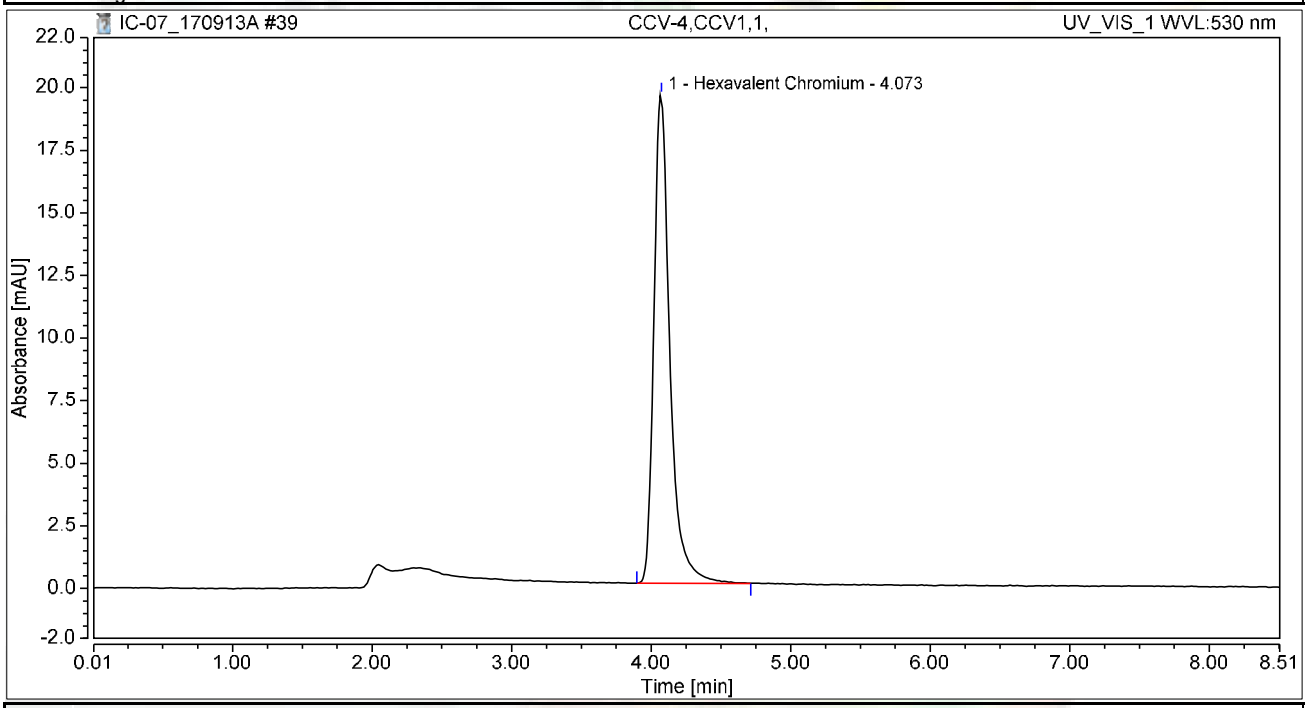
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.713	12.824	100.00	100.00	6.5983
Total:			**1.713**	**12.824**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 15:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

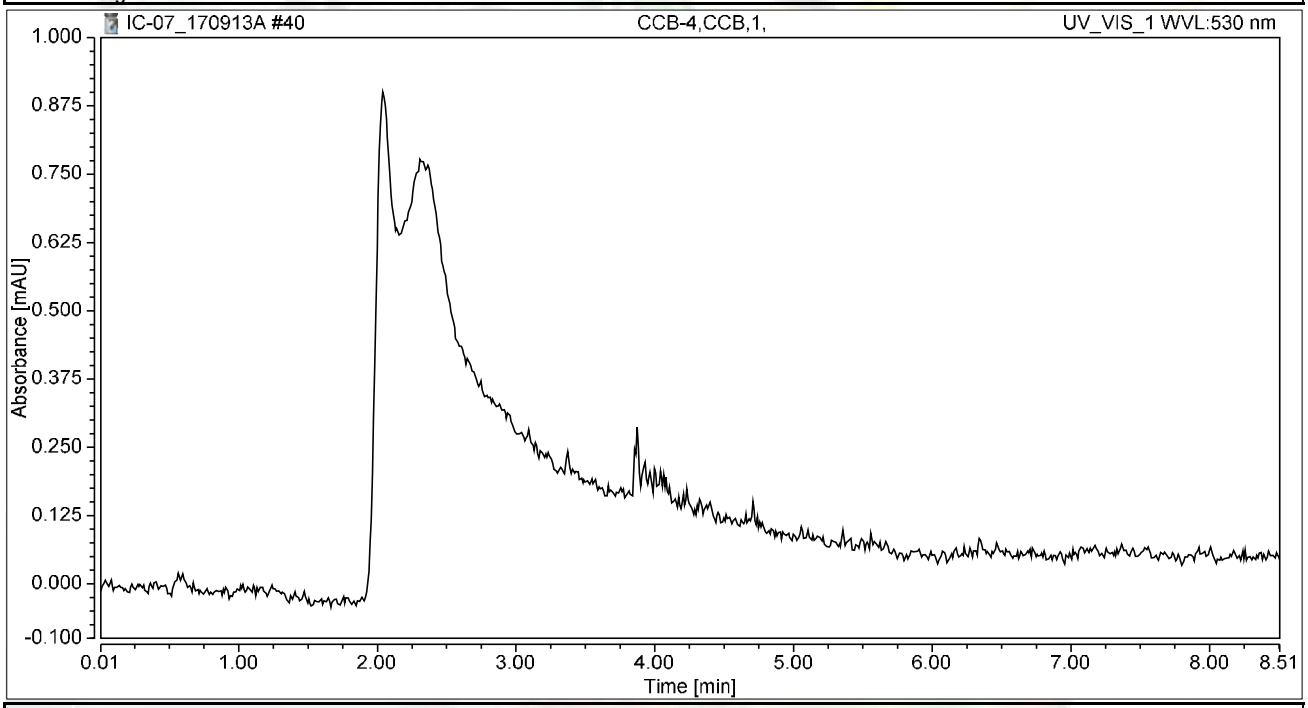
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.603	19.525	100.00	100.00	10.0298
Total:			**2.603**	**19.525**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 16:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

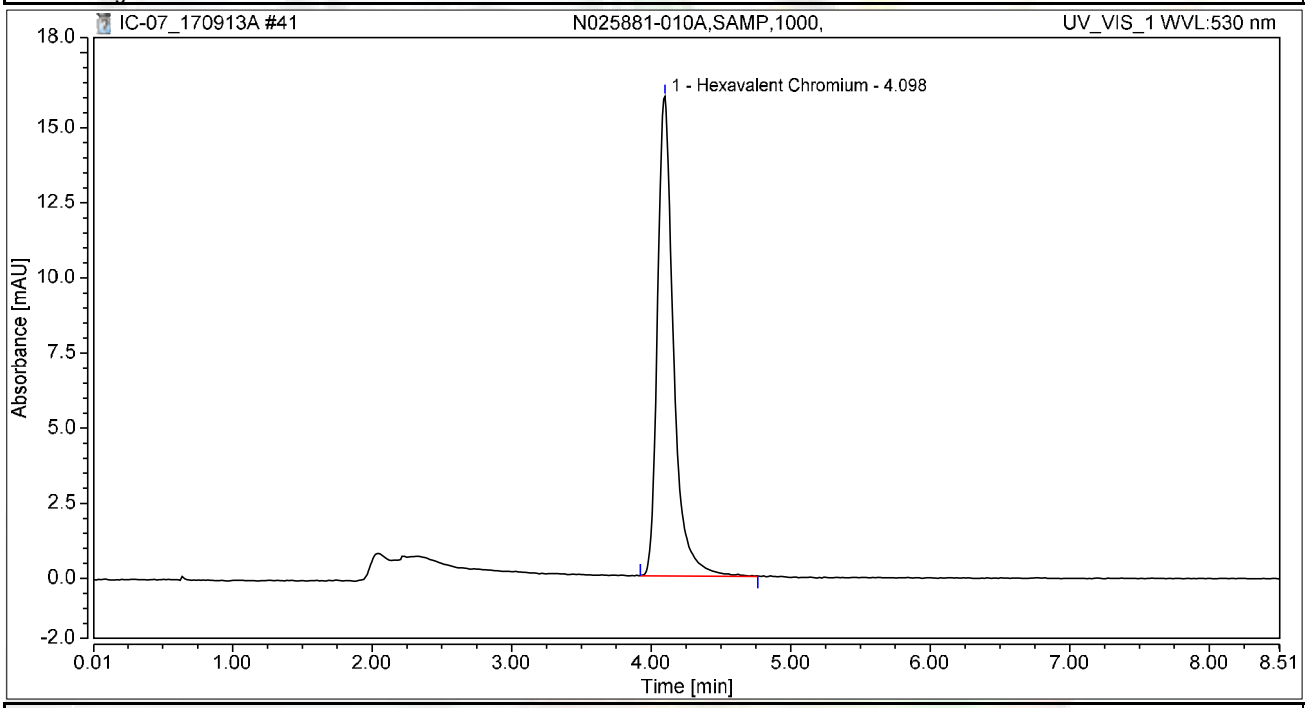
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-010A,SAMP,1000,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 16:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

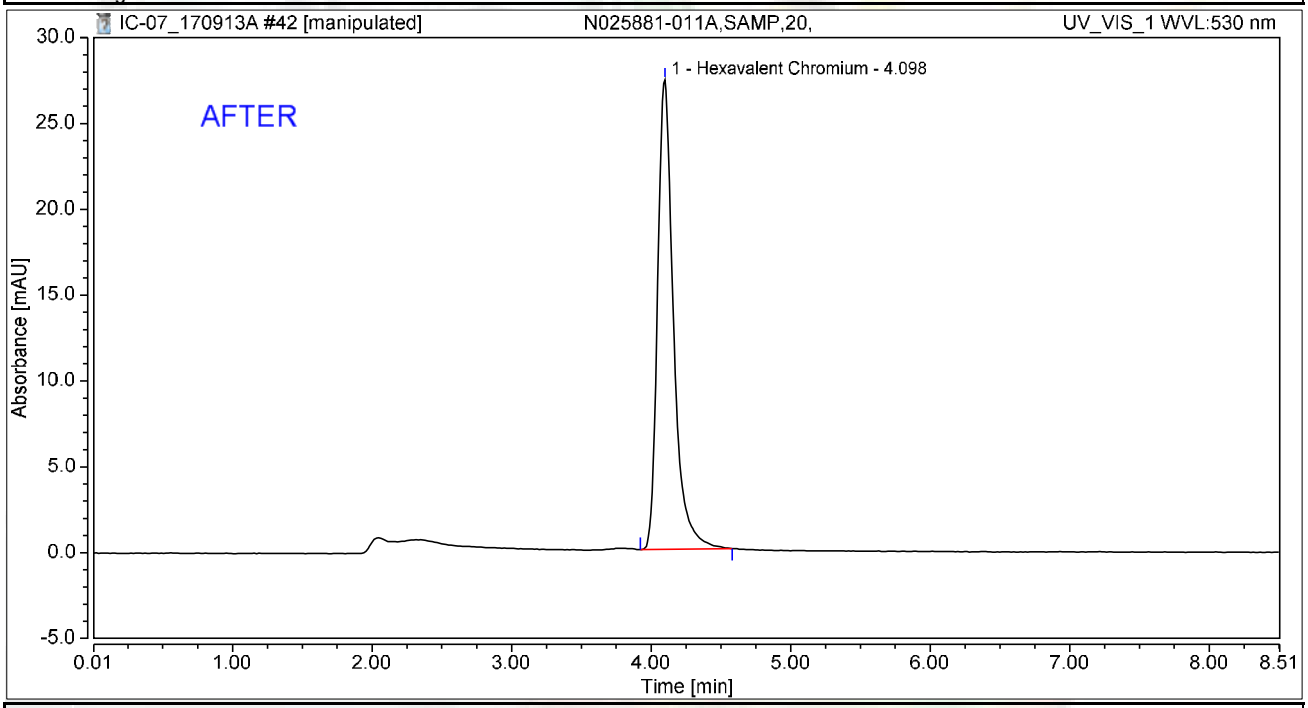
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.098	2.136	15.953	100.00	100.00	8.2280
Total:			**2.136**	**15.953**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025881-011A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 16:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.098	3.631	27.350	100.00	100.00	13.9916
Total:			**3.631**	**27.350**	**100.00**	**100.00**	

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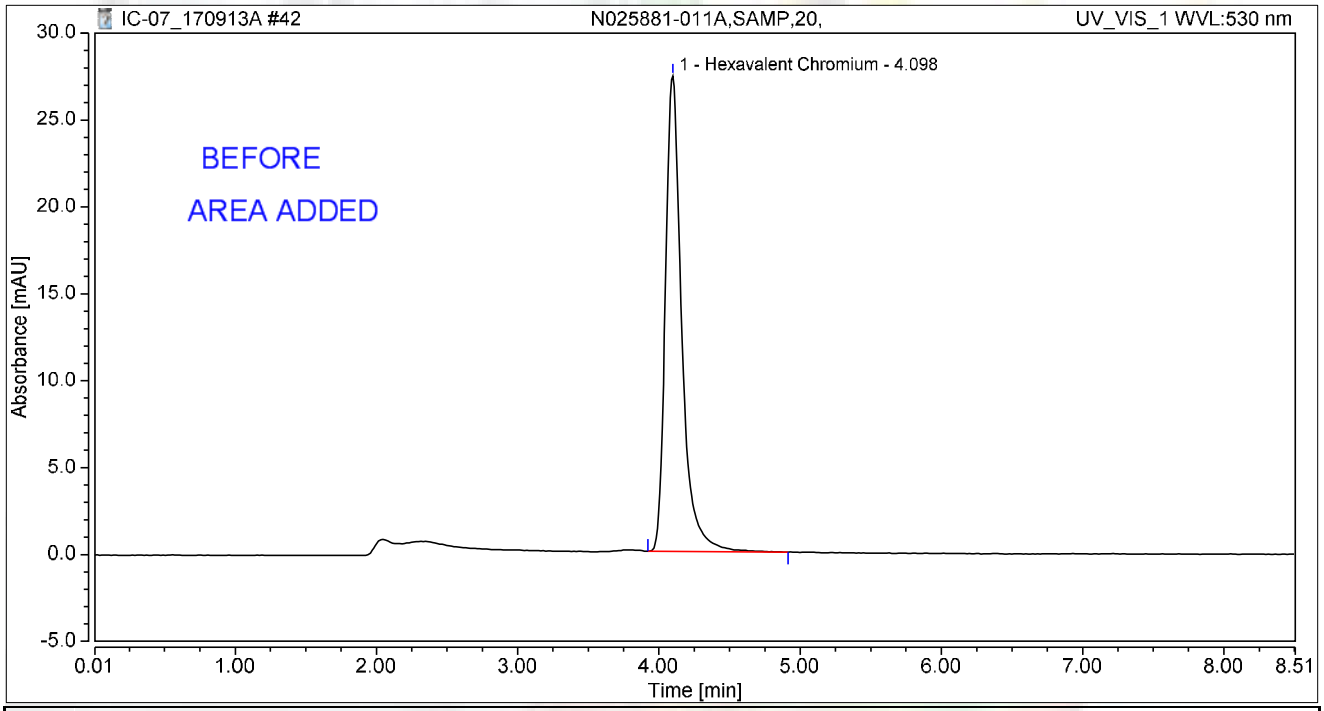
Chromatogram and Results

Injection Details

Injection Name:	**N025881-011A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 16:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.098	3.675	27.375	100.00	100.00	14.1606
Total:			**3.675**	**27.375**	**100.00**	**100.00**	

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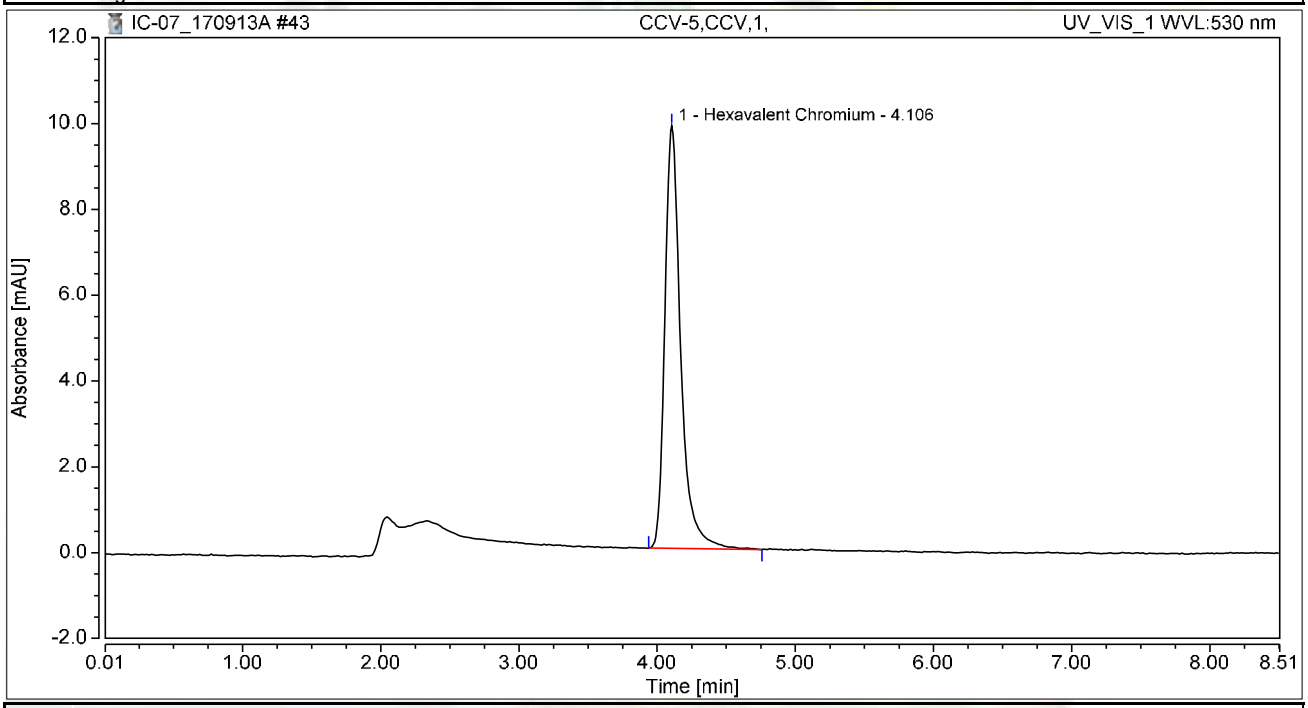
Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 16:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

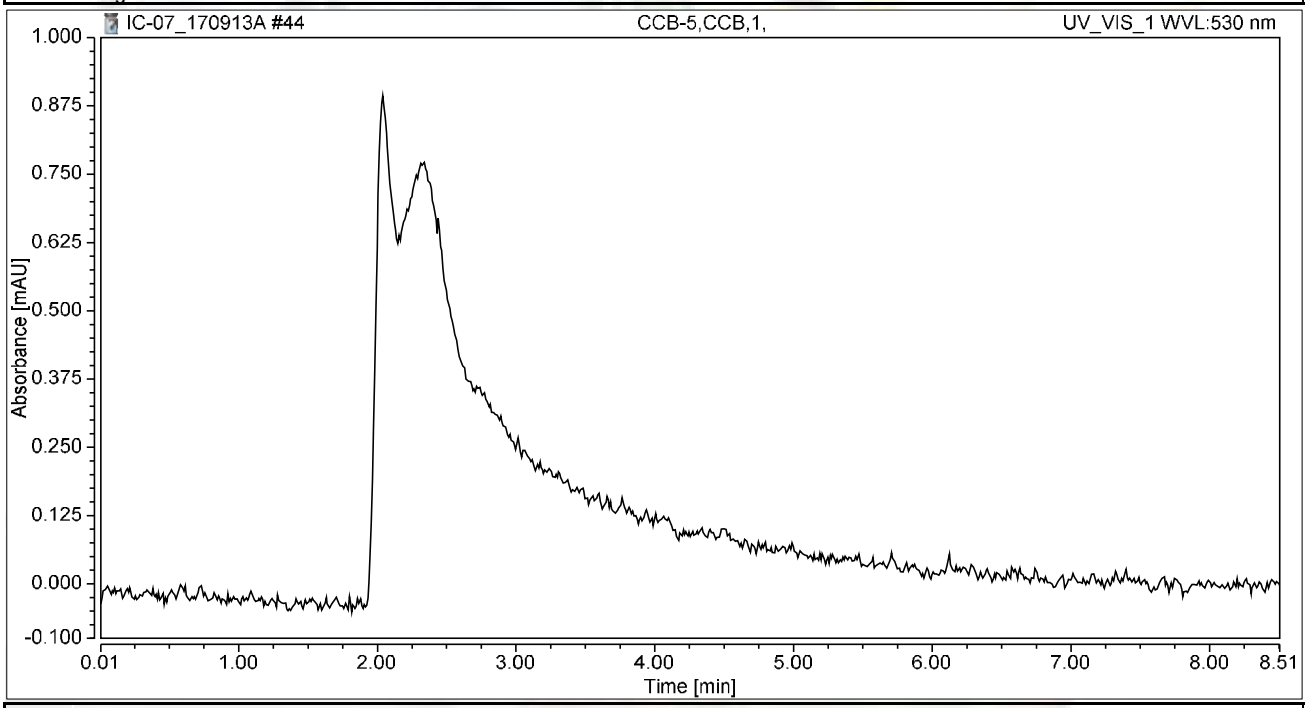
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	1.312	9.849	100.00	100.00	5.0539
Total:			**1.312**	**9.849**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 16:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

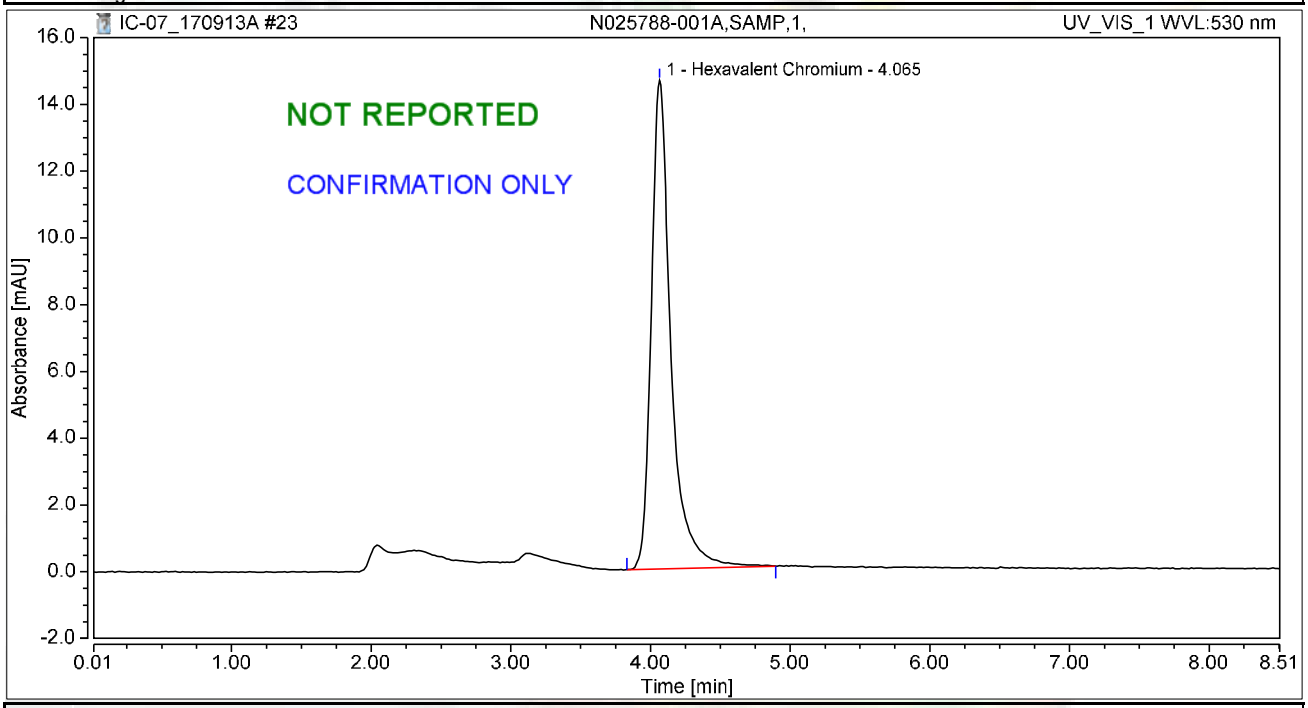
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

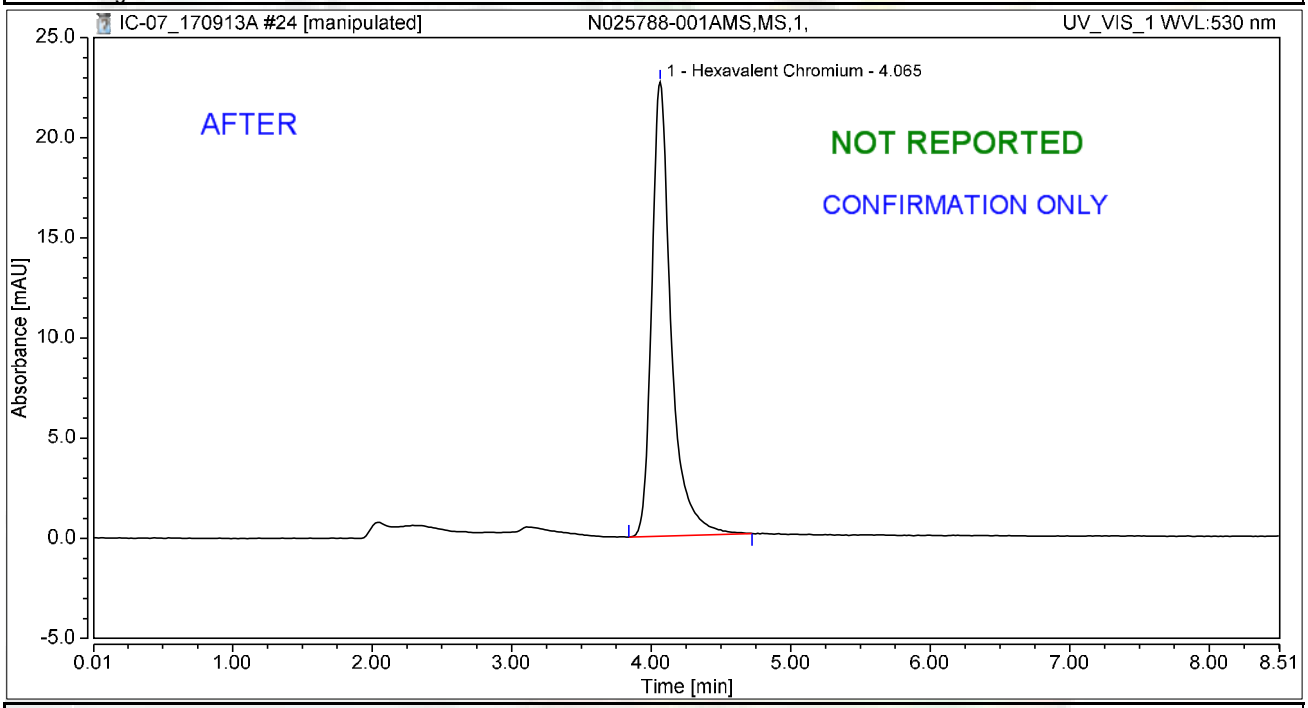
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.393	14.637	100.00	100.00	9.2207
Total:			**2.393**	**14.637**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 12:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.658	22.672	100.00	100.00	14.0925
Total:			**3.658**	**22.672**	**100.00**	**100.00**	

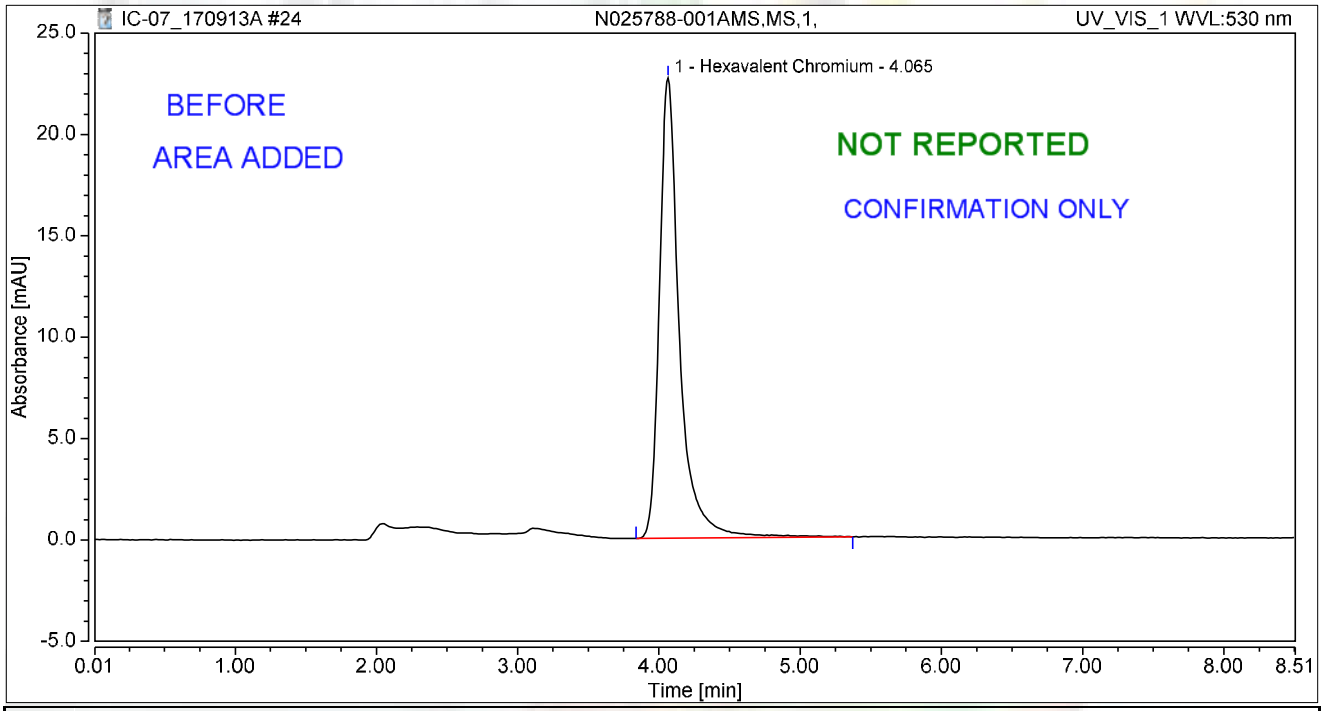
rba 9/15/2017

Chromatogram and Results

Injection Details

Injection Name:	**N025788-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Sep/17 12:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.743	22.700	100.00	100.00	14.4227
Total:			**3.743**	**22.700**	**100.00**	**100.00**	

rba 9/15/2017

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117748 **Analyst:** LSR

ASSET #: N025788 **Date Analyzed:** 9/8/2017

Method: EPA 2320

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/12/2017

2nd Level Reviewer: 9/25/2017 Date:

SAMPLE CALCULATION

Sample ID: **N025788-001C @ pH 7.52**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.40 mL)

= **0.02193 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.50) (0.02193 N) (1) * 1000

= 230.2650 mg**/L**

Reporting results in two significant figures,

= **230 mg/L** as CaCO3

Julia Ramit 9/12/2017

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02193 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (10.50 mL) (0.02193) (1) * 1000

= 230.2650 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **230.2650 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **230 mg/L**

Shilpa Ramit 9/12/2017

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.67	50	0.00	0.050	MBLK
LCS-1	8.48	50	0.05	4.45	LCS
N025788-001C	7.52	50	0.00	10.50	SAMP
N025788-002C	7.33	50	0.00	6.70	SAMP
N025788-001CDUP	7.51	50	0.00	10.80	DUP
N025788-002CMS	7.60	50	0.00	11.30	MS
N025788-002CMSD	7.62	50	0.00	11.20	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.40**	ml
N H2SO4	**0.02193**	Normal
Date Analyzed:	**9/8/17**	
Time:	**10:00 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-150601A**	
Sulfuric Acid:	**R170821A**	

Julia Ramit 9/12/2017

Date Analyzed:	9/8/17		**Reagents:**					**Standardization:**					**P = 0**
Time Started:	10:00 AM			Sodium Carbonate:	CINV-161205A				Spike amt:	5	**mL**		**P < 1/2 T**
Analyzed By:	**LSR**			Hydrochloric Acid:	0				Titrant used:	11.4	**mL**		**P = 1/2 T**
				Sulfuric Acid:	R170821A								**P > 1/2 T**
									N H2SO4	0.02193	**N**		**P = T**

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.67				0.02193	0.00	0.05	0.05	1	0.00	1.10	
LCS-1	50	8.48				0.02193	0.05	4.40	4.45	1	1.10	97.59	
N025788-001C	50	7.52				0.02193	0.00	10.50	10.50	1	0.00	230.26	
N025788-002C	50	7.33				0.02193	0.00	6.70	6.70	1	0.00	146.93	
N025788-001CDU	50	7.51				0.02193	0.00	10.80	10.80	1	0.00	236.84	
N025788-002CMS	50	7.6				0.02193	0.00	11.30	11.30	1	0.00	247.81	
N025788-002CMS	50	7.62				0.02193	0.00	11.20	11.20	1	0.00	245.61	

Silvia Ramit 9/12/2017

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	9/8/17
Time:	10:00 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.10	1.10	1.10		P = 0
LCS-1	0.00	2.19	95.39	97.59	97.59		P < 1/2 T
N025788-001C	0.00	0.00	230.26	230.26	230.26		P = 0
N025788-002C	0.00	0.00	146.93	146.93	146.93		P = 0
N025788-001CDUP	0.00	0.00	236.84	236.84	236.84		P = 0
N025788-002CMS	0.00	0.00	247.81	247.81	247.81		P = 0
N025788-002CMSD	0.00	0.00	245.61	245.61	245.61		P = 0

Silvia Ramit 9/12/2017

Matrix: H_2O

Date Extracted: 9/8/17

Time Extracted:

Extracted By:

Date Analyzed: 9/8/17

Time Analyzed: 1000

Analyzed By: LSR

Reagent Lot # / Reagent ID

Sodium Carbonate: CINV-161205A

Hydrochloric Acid: –

Sulfuric Acid: R170821A

Sodium Bicarbonate: CINV1526016

pH meter CALIBRATION:

SLOPE: 98.4%

pH 7 – 6.95 – CINV170125C

4 – 3.98 – 170125B

10 – 10.03 – 170331A

	Sample ID	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION										$NH_2SO_4 = \frac{(2.65g/L)(5mL)}{(53)(V\ titrant)}$	$= 0.02192982$
	#1	50 mL	10.58	1205T170913A	5 mL	0.05N	–	–	11.40	50/50		
	#2	↓	10.48	↓	↓	↓	–	–	11.40	↓		
1)	MBLK	50 mL	5.67	–	–	–	0.0213	0	0.05	50/50		
2)	LCS	↓	8.48	1WST170908B	1 mL	0.05N	↓	0.05	4.45	↓		
3)	N025788-1C		7.52	–	–	–		0	10.50			
4)	2C		7.33	–	–	–		0	6.70			
5)	1SDUP		7.51	–	–	–		0	10.80			
6)	2MS		7.60	1WST170908B	1 mL	0.05N		0	11.30			
7)	2MSD	↓	7.62	↓	↓	↓	↓	0	11.20	↓		
8)												
9)												
10)												
11)												
12)												
13)												
14)												
15)												
16)												
17)												
18)												
19)												
20)												

$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50,000)}{Vsx}$

$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50,000)}{Vsx}$

MS

MSD

LCS

Julia Ramit 9/12/2017

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R117768
ASSET #: N025788 / N025790 / N025805

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 9/8/2017

Method:

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			X
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			X
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?			X			X
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			X
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			X
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: rba Date: 9/11/2017

2nd Level Reviewer: [signature] Date: 09/16/17

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the orignal sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N025788-001C** concentration in mg/L is calculated as follows:

Chloride, mg/L = 5.9552 * 200

= 1191.04

Reporting result in two significant values,

Chloride, mg/L = 1200

rba 9/12/2017

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 26
Created: 9/5/2017 8:43:34 AM by IC-05
Last Update: 9/6/2017 8:02:32 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
2	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
3	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
4	Std - 0	Standard	1000.0	Anions Default	Anions_170905	Finished
5	Std - 1	Standard	1000.0	Anions Default	Anions_170905	Finished
6	Std - 2	Standard	1000.0	Anions Default	Anions_170905	Finished
7	Std - 3	Standard	1000.0	Anions Default	Anions_170905	Finished
8	Std - 4	Standard	1000.0	Anions Default	Anions_170905	Finished
9	Std - 5	Standard	1000.0	Anions Default	Anions_170905	Finished
10	ICV,ICV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
11	ICB,ICB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
14	N025742-001C,SAMP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
15	N025742-002C,SAMP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
16	N025742-003C,SAMP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
17	N025742-004C,SAMP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
18	N025742-005C,SAMP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
19	N025742-006C,SAMP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
20	N025742-003CMS,MS,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
21	N025742-003CMSD,MSD,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
22	CCV-1,CCV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
23	CCB-1,CCB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
24	N025742-003CDUP,DUP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
25	CCV-2,CCV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
26	CCB-2,CCB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished

jrba 9/7/2017

Chromeleon © Dionex Corporation, Version 6.80 SR10 Build 2818 (166959)

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 26
Created: 9/5/2017 8:43:34 AM by IC-05
Last Update: 9/6/2017 8:02:32 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK,1	9/5/2017 8:44:09 AM	BLANK
2	BLANK,BLANK,1	9/5/2017 8:59:27 AM	BLANK
3	BLANK,BLANK,1	9/5/2017 9:24:54 AM	BLANK
4	Std - 0	9/5/2017 9:40:13 AM	IBLANK
5	Std - 1	9/5/2017 10:06:21 AM	STD-LOW
6	Std - 2	9/5/2017 10:21:39 AM	STD
7	Std - 3	9/5/2017 10:36:57 AM	STD
8	Std - 4	9/5/2017 10:52:15 AM	STD
9	Std - 5	9/5/2017 11:07:33 AM	STD-HIGH
10	ICV,ICV,1	9/5/2017 11:38:34 AM	ICV
11	ICB,ICB,1	9/5/2017 11:53:52 AM	ICB
12	MB-H2O,MBLK,1	9/5/2017 12:09:10 PM	METHOD BLANK
13	LCS-H2O,LCS,1	9/5/2017 12:24:28 PM	LCS
14	N025742-001C,SAMP,5	9/5/2017 12:39:46 PM	SAMP,2>10mL
15	N025742-002C,SAMP,5	9/5/2017 12:55:03 PM	SAMP,2>10mL
16	N025742-003C,SAMP,5	9/5/2017 1:10:21 PM	SAMP,2>10mL
17	N025742-004C,SAMP,5	9/5/2017 1:25:39 PM	SAMP,2>10mL
18	N025742-005C,SAMP,5	9/5/2017 1:40:57 PM	SAMP,2>10mL
19	N025742-006C,SAMP,5	9/5/2017 1:56:15 PM	SAMP,2>10mL
20	N025742-003CMS,MS,5	9/5/2017 2:29:04 PM	MS,2>10mL
21	N025742-003CMSD,MSD,5	9/5/2017 2:44:22 PM	MSD,2>10mL
22	CCV-1,CCV,1	9/5/2017 2:59:40 PM	CCV
23	CCB-1,CCB,1	9/5/2017 3:14:58 PM	CCB
24	N025742-003CDUP,DUP,5	9/5/2017 3:30:15 PM	DUP,2>10mL
25	CCV-2,CCV,1	9/5/2017 3:45:33 PM	CCV
26	CCB-2,CCB,1	9/5/2017 4:00:51 PM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 9/7/2017 4:03:39 PM by IC-05
Last Update: 9/8/2017 4:40:46 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
2	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
3	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
4	Std - 0	Standard	1000.0	Anions Default	Anions_170905	Finished
5	Std - 1	Standard	1000.0	Anions Default	Anions_170905	Finished
6	Std - 2	Standard	1000.0	Anions Default	Anions_170905	Finished
7	Std - 3	Standard	1000.0	Anions Default	Anions_170905	Finished
8	Std - 4	Standard	1000.0	Anions Default	Anions_170905	Finished
9	Std - 5	Standard	1000.0	Anions Default	Anions_170905	Finished
10	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
11	CCV-1,CCV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
12	CCB-1,CCB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
13	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
14	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
15	N025787-001C,SAMP,5	Unknown	1000.0	Anions Default2	Anions_170905	Finished
16	N025787-002C,SAMP,5	Unknown	1000.0	Anions Default2	Anions_170905	Finished
17	N025787-001CDUP,DUP,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
18	N025787-001CMS,MS,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
19	N025787-001CMSD,MSD,5	Unknown	1000.0	Anions Default	Anions_170905	Finished
20	N025790-003C,SAMP,10	Unknown	1000.0	Anions Default	Anions_170905	Finished
21	N025790-002C,SAMP,20	Unknown	1000.0	Anions Default	Anions_170905	Finished
22	N025790-003C,SAMP,20	Unknown	1000.0	Anions Default	Anions_170905	Finished
23	CCV-2,CCV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
24	CCB-2,CCB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
25	N025790-003CDUP,DUP,20	Unknown	1000.0	Anions Default	Anions_170905	Finished
26	N025790-003CMS,MS,20	Unknown	1000.0	Anions Default	Anions_170905	Finished
27	N025790-003CMSD,MSD,20	Unknown	1000.0	Anions Default	Anions_170905	Finished
28	N025788-001C,SAMP,200	Unknown	1000.0	Anions Default	Anions_170905	Finished
29	N025788-001CDUP,DUP,200	Unknown	1000.0	Anions Default	Anions_170905	Finished
30	N025788-001CMS,MS,200	Unknown	1000.0	Anions Default	Anions_170905	Finished
31	N025788-001CMSD,MSD,200	Unknown	1000.0	Anions Default	Anions_170905	Finished
32	N025788-002C,SAMP,500	Unknown	1000.0	Anions Default	Anions_170905	Finished
33	N025803-001A,SAMP,100	Unknown	1000.0	Anions Default	Anions_170905	Finished
34	N025803-001A,SAMP,10	Unknown	1000.0	Anions Default	Anions_170905	Finished
35	CCV-3,CCV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
36	CCB-3,CCB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
37	N025788-001C,SAMP,50	Unknown	1000.0	Anions Default	Anions_170905	Finished
38	N025788-002C,SAMP,50	Unknown	1000.0	Anions Default	Anions_170905	Finished
39	N025788-002CDUP,DUP,50	Unknown	1000.0	Anions Default	Anions_170905	Finished
40	N025788-002CMS,MS,50	Unknown	1000.0	Anions Default	Anions_170905	Finished
41	N025788-002CMSD,MSD,50	Unknown	1000.0	Anions Default	Anions_170905	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 9/7/2017 4:03:39 PM by IC-05
Last Update: 9/8/2017 4:40:46 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK,1	9/5/2017 8:44:09 AM	BLANK
2	BLANK,BLANK,1	9/5/2017 8:59:27 AM	BLANK
3	BLANK,BLANK,1	9/5/2017 9:24:54 AM	BLANK
4	Std - 0	9/5/2017 9:40:13 AM	IBLANK
5	Std - 1	9/5/2017 10:06:21 AM	STD-LOW
6	Std - 2	9/5/2017 10:21:39 AM	STD
7	Std - 3	9/5/2017 10:36:57 AM	STD
8	Std - 4	9/5/2017 10:52:15 AM	STD
9	Std - 5	9/5/2017 11:07:33 AM	STD-HIGH
10	BLANK,BLANK,1	9/8/2017 7:27:07 AM	BLANK
11	CCV-1,CCV,1	9/8/2017 7:42:25 AM	CCV
12	CCB-1,CCB,1	9/8/2017 7:57:43 AM	CCB
13	MB-H2O,MBLK,1	9/8/2017 8:13:01 AM	METHOD BLANK
14	LCS-H2O,LCS,1	9/8/2017 8:28:18 AM	LCS
15	N025787-001C,SAMP,5	9/8/2017 8:59:58 AM	SAMP,2>10mL
16	N025787-002C,SAMP,5	9/8/2017 9:22:16 AM	SAMP,2>10mL
17	N025787-001CDUP,DUP,5	9/8/2017 9:44:34 AM	DUP,2>10mL
18	N025787-001CMS,MS,5	9/8/2017 9:59:51 AM	MS,2>10mL
19	N025787-001CMSD,MSD,5	9/8/2017 10:15:09 AM	MSD,2>10mL
20	N025790-003C,SAMP,10	9/8/2017 10:30:27 AM	SAMP,1>10mL
21	N025790-002C,SAMP,20	9/8/2017 10:57:54 AM	SAMP,0.5>10mL
22	N025790-003C,SAMP,20	9/8/2017 11:13:11 AM	SAMP,0.5>10mL
23	CCV-2,CCV,1	9/8/2017 11:28:29 AM	CCV
24	CCB-2,CCB,1	9/8/2017 11:43:47 AM	CCB
25	N025790-003CDUP,DUP,20	9/8/2017 11:59:05 AM	DUP,0.5>10mL
26	N025790-003CMS,MS,20	9/8/2017 12:14:23 PM	MS,0.5>10mL
27	N025790-003CMSD,MSD,20	9/8/2017 12:29:41 PM	MSD,0.5>10mL
28	N025788-001C,SAMP,200	9/8/2017 12:44:59 PM	SAMP,0.05>10mL
29	N025788-001CDUP,DUP,200	9/8/2017 1:00:16 PM	DUP,0.05>10mL
30	N025788-001CMS,MS,200	9/8/2017 1:15:34 PM	MS,0.05>10mL
31	N025788-001CMSD,MSD,200	9/8/2017 1:30:52 PM	MSD,0.05>10mL
32	N025788-002C,SAMP,500	9/8/2017 1:46:10 PM	SAMP,0.02>10mL
33	N025803-001A,SAMP,100	9/8/2017 2:10:21 PM	SAMP,0.1>10mL
34	N025803-001A,SAMP,10	9/8/2017 2:28:20 PM	SAMP,1>10mL
35	CCV-3,CCV,1	9/8/2017 2:43:37 PM	CCV
36	CCB-3,CCB,1	9/8/2017 2:58:55 PM	CCB
37	N025788-001C,SAMP,50	9/8/2017 3:14:13 PM	SAMP,0.2>10mL
38	N025788-002C,SAMP,50	9/8/2017 3:29:31 PM	SAMP,0.2>10mL
39	N025788-002CDUP,DUP,50	9/8/2017 3:44:49 PM	DUP,0.2>10mL
40	N025788-002CMS,MS,50	9/8/2017 4:00:07 PM	MS,0.2>10mL
41	N025788-002CMSD,MSD,50	9/8/2017 4:15:25 PM	MSD,0.2>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 9/7/2017 4:03:39 PM by IC-05
Last Update: 9/8/2017 4:40:46 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N025805-001B,SAMP,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
43	CCV-4,CCV,1	Unknown	1000.0	Anions Default	Anions_170905	Finished
44	CCB-4,CCB,1	Unknown	1000.0	Anions Default	Anions_170905	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2016_Anions
Timebase: IC-08_ANIONS
#Samples: 44
Created: 9/7/2017 4:03:39 PM by IC-05
Last Update: 9/8/2017 4:40:46 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N025805-001B,SAMP,1	9/8/2017 4:30:43 PM	SAMP,10mL
43	CCV-4,CCV,1	9/8/2017 4:46:01 PM	CCV
44	CCB-4,CCB,1	9/8/2017 5:01:19 PM	CCB

INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 9/5/2017

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0028	0.0726	0.1469	0.2936	0.7501	1.5726	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-170814B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 9/5/2017

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0031	0.0539	0.2185	0.4536	1.1582	2.4069	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-170814G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **ICV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/5/2017**	SeqNo: **2759079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.028	0.50	2.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.968	0.50	2.000	0	98.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759085**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.970	0.50	2.000	0	98.5	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.961	0.50	2.000	0	98.0	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.989	0.50	2.000	0	99.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **ICV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/5/2017**	SeqNo: **2759097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.907	0.50	4.000	0	97.7	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.962	0.50	4.000	0	99.1	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.942	0.50	4.000	0	98.6	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.961	0.50	4.000	0	99.0	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCV**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.008	0.50	4.000	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **ICB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/5/2017**	SeqNo: **2759080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.129	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.079	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **ICB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/5/2017**	SeqNo: **2759098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.168	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.151	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **117768**
Client ID: **CCB**	Batch ID: **R117768**	TestNo: **EPA 300.0**		Analysis Date: **9/8/2017**	SeqNo: **2759113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 9/8/2017

Sample Name		Retention Time	Evaluation
CCV-1	Chloride	3.930	
CCV-2	Chloride	3.927	
CCV-3	Chloride	3.927	
CCV-4	Chloride	3.924	
	Average	3.927	
	Applied RT Window	3.727 - 4.127	
MB-R117768_CL	Chloride	3.934	PASS
LCS-R117768_CL	Chloride	3.927	PASS
N025788-001C	Chloride	3.927	PASS
N025788-001CDUP	Chloride	3.930	PASS
N025788-001CMS	Chloride	3.927	PASS
N025788-001CMSD	Chloride	3.930	PASS
N025788-002C	Chloride	3.927	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 9/8/2017

Sample Name		Retention Time	Evaluation
CCV-1	Sulfate	8.493	
CCV-2	Sulfate	8.487	
CCV-3	Sulfate	8.483	
CCV-4	Sulfate	8.477	
	Average	8.485	
	Applied RT Window	8.285 - 8.685	
MB-R117768_SO4	Sulfate	8.540	PASS
LCS-R117768_SO4	Sulfate	8.494	PASS
N025788-001C	Sulfate	8.480	PASS
N025788-002C	Sulfate	8.484	PASS
N025788-002CDUP	Sulfate	8.483	PASS
N025788-002CMS	Sulfate	8.487	PASS
N025788-002CMSD	Sulfate	8.487	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2017

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/26/2017
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.024	0.10	0.0906	**91**
Chloride	**0.0091**	0.020	0.130	0.50	0.5635	**113**
Nitrite	**0.0030**	0.010	0.023	0.05	0.0581	**116**
Bromide	**0.0196**	0.040	0.048	0.20	0.194	**97**
Nitrate	**0.0050**	0.010	0.023	0.05	0.0599	**120**
Phosphate	**0.0135**	0.030	0.043	0.10	0.1111	**111**
Sulfate	**0.0229**	0.050	0.195	0.50	0.6178	**124**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R117783 **Analyst:** QBM

ASSET #: N025788 **Date Analyzed:** 9/11/2017

Method: 4500NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X					
3. ICV within ± 15% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X					
5. CCV within ± 15% of expected value.	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X					
Sample Information						
8. All samples are within linear range.	X					
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)	X					
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer 9/21/2017 Date:

2nd Level Reviewer 9/21/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 4500_NO3F
TEST NAME: Nitrate by Automated Cadmium Reduction Method
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

Where:

A= mg/L, Nitrate/Nitrite-N instrument calculated concentration

DF= dilution factor

For **N025788-002D,** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.559 * 5

= 2.795 mg/L

Reporting result in 2 significant figures,

Nitrate/Nitrite-N, mg/L = 2.8

9/21/2017

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

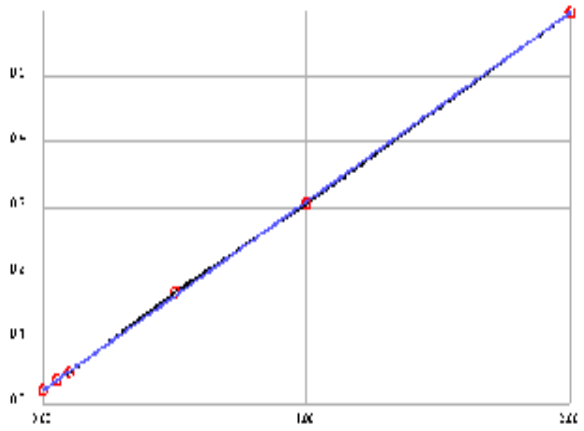
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2884x + 0.0211
Correlation	.999885

Calibrant	Energy	Set	Conc
1	0.0199	0.0000	-0.0041
2	0.0347	0.0500	0.0473
3	0.0484	0.1000	0.0948
4	0.1719	0.5000	0.5230
5	0.3063	1.0000	0.9890
6	0.5979	2.0000	2.0001

Notes:

9/21/2017

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **ICV**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.500	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **CCV**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.529	0.050	0.5000	0	106	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **CCV**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.500	0.050	0.5000	0	100	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **CCV**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.491	0.050	0.5000	0	98.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N025788
Project: PG&E Topock - PMP, RC000753.801B

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **ICB**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **CCB**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **CCB**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **117783**
Client ID: **CCB**	Batch ID: **R117783**	TestNo: **SM4500-NO3**		Analysis Date: **9/11/2017**	SeqNo: **2759821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 09-11-2017 16:51
Time end: 09-11-2017 19:25

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:49:45	-0.0037		0.0200
2	<BLANK>	18:50:46	-0.0034		0.0201
3	<CAL1>	18:51:40	-0.0041	[0]	0.0199
4	<CAL2>	18:52:35	0.0473	[0.05]	0.0347
5	<CAL3>	18:53:31	0.0948	[0.1]	0.0484
6	<CAL4>	18:54:31	0.5230	[0.5]	0.1719
7	<CAL5>	18:55:26	0.9890	[1]	0.3063
8	<CAL6>	18:56:28	2.0001	[2]	0.5979
9	,BLANK,BLANK,1,	18:57:24	0.0261		0.0286
10	,ICV,ICV,1,	18:58:18	0.5001		0.1653
11	,ICB,ICB,1,	18:59:19	0.0081		0.0234
12	,MB-H2O,MBLK,1,	19:00:14	-0.0009		0.0208
13	,LCS-H2O,LCS,1,	19:01:09	0.5105		0.1683
14	,N025755-002E,SAMP,5,	19:02:10	0.5462		0.1786
15	,N025755-002EDUP,DUP,5,	19:03:06	0.5629		0.1834
16	,N025755-002EMS,MS,5,	19:04:01	1.0843		0.3338
17	,N025755-002EMSD,MSD,5,	19:05:01	1.1121		0.3418
18	,N025694-001C,SAMP,1,	19:05:57	0.0729		0.0421
19	,N025694-002C,SAMP,1,	19:06:52	0.0604		0.0385
20	,N025694-003C,SAMP,1,	19:07:53	0.1045		0.0512
21	,BLANK,	19:08:48	0.0001		0.0211
22	,CCV-1,CCV,1,	19:09:38	0.5285		0.1735
23	,CCB-1,CCB,1,	19:10:20	0.0029		0.0219
24	,N025732-004D,SAMP,5,	19:11:09	0.0074		0.0232
25	,N025742-001D,SAMP,20,	19:11:51	0.3292		0.1160
26	,N025742-002D,SAMP,20,	19:12:34	0.2955		0.1063

9/21/2017

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N025742-003D,SAMP,5,	19:13:24	0.4942		0.1636
28	,N025742-004D,SAMP,5,	19:14:06	0.4845		0.1608
29	,N025742-005D,SAMP,5,	19:14:49	0.6218		0.2004
30	,N025742-006D,SAMP,5,	19:15:37	0.4713		0.1570
31	,N025788-001D,SAMP,1,	19:16:21	0.1499		0.0643
32	,N025788-002D,SAMP,5,	19:17:03	0.5590		0.1823
33	,BLANK,	19:17:52	-0.0020		0.0205
34	,CCV-2,CCV,1,	19:18:36	0.5001		0.1653
35	,CCB-2,CCB,1,	19:19:18	-0.0013		0.0207
36	,N025721-001C,SAMP,5,	19:20:07	0.0167		0.0259
37	,N025721-002C,SAMP,5,	19:20:49	-0.0051		0.0196
38	,BLANK,	19:21:32	-0.0103		0.0181
39	,CCV-3,CCV,1,	19:22:20	0.4911		0.1627
40	,CCB-3,CCB,1,	19:23:04	-0.0023		0.0204

9/21/2017

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 9/11/17
Time Analyzed: 4:46 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R170825B
Color reagent: R170825C
2% Copper Sulfate: R170825A
Ammonium Hydroxide: CINV-170424A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N025755-002E		7.93							
N025694-001C		8.54							
N025694-002C		8.25							
N025694-003C		6.27							
N025732-004D		8.03							
N025742-001D		7.05							
N025742-002D		8.27							
N025742-003D		8.07							
N025742-004D		6.50							
N025742-005D		7.88							
N025742-006D		7.23							
N025788-001D		6.62							
N025788-002D		7.39							
N025721-001C		6.15							
N025721-002C		7.98							

Advanced Technology Laboratories, Inc.
Book # 1

9/21/2017

October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026093

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 25, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N026093-001 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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11110 Artesia Blvd., Ste B, Cerritos, CA 90703
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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026093
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026093-001A	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-001B	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-001C	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-001D	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-002A	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-002B	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-002C	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-002D	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-003A	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-003B	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-003C	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-003D	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-004A	MW-705-Q317	Groundwater	9/25/2017 4:00:00 PM	9/25/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 1:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170926C**	QC Batch: **R118114**			PrepDate			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	9/26/2017 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170926C**	QC Batch: **R118114**			PrepDate			Analyst: **LR**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	9/26/2017 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170926C**	QC Batch: **R118114**			PrepDate			Analyst: **LR**
Specific Conductance	6100	0.10	0.10		umhos/cm	1	9/26/2017 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026093-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118114**
Client ID:	**ZZZZZZ**	Batch ID: **R118114**	TestNo: **EPA 120.1**		Analysis Date: **9/26/2017**	SeqNo: **2774218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12750.000	0.10						12770	0.157	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 1:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B** QC Batch: **R118137**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	9/27/2017 06:19 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/12/2017 06:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B**	QC Batch: **R118137**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	430	3.3	20		µg/L	100	9/26/2017 09:52 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	520	0.096	5.0		µg/L	5	10/12/2017 07:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B**	QC Batch: **R118137**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	450	3.3	20		µg/L	100	9/26/2017 10:20 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	500	0.096	5.0		µg/L	5	10/12/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-705-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B**	QC Batch: **R118137**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/26/2017 10:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118137**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **PBW**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118137**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **LCSW**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.902	0.20	5.000	0	98.0	90	110				

Sample ID **N026093-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	927.640	20	500.0	429.4	99.7	90	110				

Sample ID **N026093-002AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	934.130	20	500.0	429.4	101	90	110	927.6	0.697	20	

Sample ID **N026093-003ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	450.370	20						445.6	1.08	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026093-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	955.660	20	500.0	445.6	102	90	110				

Sample ID **N026093-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.971	0.20	1.000	0	97.1	90	110				

Sample ID **N026093-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.893	1.0	5.000	0.3410	91.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63964	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	PBW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63964	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	LCSW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789562

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 1:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.051	0.022	0.050		mg/L	1	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	4.3	0.22	0.50		mg/L	10	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.8	0.22	0.50		mg/L	10	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R118389**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **PBW**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **LCS-R118389**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **LCSW**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.8	85	115				

Sample ID **N026256-001DDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ZZZZZZ**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.02610	0	20	

Sample ID **N026256-002DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ZZZZZZ**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.175	0.25	2.500	2.950	89.0	75	125				

Sample ID **N026256-002DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ZZZZZZ**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.432	0.25	2.500	2.950	99.3	75	125	5.174	4.86	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 1:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	4.2	0.025	0.10		µg/L	1	10/12/2017 06:35 AM
Manganese	950	0.56	5.0		µg/L	10	10/12/2017 07:14 AM
Molybdenum	62	0.039	0.50		µg/L	1	10/12/2017 06:35 AM
Selenium	ND	0.028	0.50		µg/L	1	10/12/2017 06:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**				PrepDate	**9/29/2017**	Analyst: **CEI**
Arsenic	1.6	0.025	0.10		µg/L	1	10/12/2017 07:03 AM
Manganese	2.8	0.056	0.50		µg/L	1	10/12/2017 07:03 AM
Molybdenum	14	0.039	0.50		µg/L	1	10/12/2017 07:03 AM
Selenium	3.4	0.028	0.50		µg/L	1	10/12/2017 07:03 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Arsenic	1.5	0.025	0.10		µg/L	1	10/12/2017 07:08 AM
Manganese	3.0	0.056	0.50		µg/L	1	10/12/2017 07:08 AM
Molybdenum	14	0.039	0.50		µg/L	1	10/12/2017 07:08 AM
Selenium	3.6	0.028	0.50		µg/L	1	10/12/2017 07:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

ANALYTICAL EMPOWERMENT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Labspec	CalTrans	2. Headspace
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200 Fax:	Others ✓	LEVEL III	3. Container Intact
Title: SR. Technician	Phone: 916-786-3302 Fax:		Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 9-25-17	Sampled By: Gary Clift		Global ID:	Regulatory	5. IR number 2
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State: CA	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 9/25/2017				Sample Temp: 2-1c
Project Number: RC000753.0801					Courier: Lab; Tracking No.:

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Metals Dissolved (6020AFF), Manganese; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026093 - 01	MW-64BR-Q317	9/25/2017	13:40		X		X	X	X	X	X		X					E	4	P	BN	
2	- 02	MW-62-065-Q317	9/25/2017	15:26		X		X	X	X	X	X		X					E	4	P	BN	
3	- 03	MW-902-Q317	9/25/2017	15:36		X		X	X	X	X	X		X					E	4	P	BN	
4	- 04	MW-705-Q317	9/25/2017	16:00		X													E	1	P	BN	
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Gary R Clift	9-25-17 1620		9-25-17 1620 ✓
	9/25/17 1827		9/25/17 1827 1827
	Date/Time:		Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/25/2017	Workorder:	N026093
Rep sample Temp (Deg C):	2.1	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/2/2017

Reviewed By: 10/6/2017

Sonny Lorenzo

From:	Marlon B. Cartin <marlon@assetlaboratories.com>
Sent:	Wednesday, October 04, 2017 9:26 AM
To:	'Madsen, Laura'; 'ASSET LV Sample Control'; 'Fernando Rivera'
Cc:	'Bush, Dan'; 'Serna, Erica'; 'Jeffers, Gantt'; 'Clift, Gary'; 'Kalib Sumter'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'; 'Yoandra Rodriguez'
Subject:	RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017

We will process this Laura.

Sonny/Andrea – Please add in LIMS and inform the analyst ASAP.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:25 AM
To: ASSET LV Sample Control; Marlon B. Cartin; 'Fernando Rivera'
Cc: Madsen, Laura; Bush, Dan; Serna, Erica; Jeffers, Gantt; Clift, Gary; Kalib Sumter
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017
Importance: High

Hi Marlon,
Please revise the following SDGs to include dissolved arsenic. It was missed on the COC.

N026114	MW-38S-Q317
N026114	MW-38S-SMT-Q317
N026114	MW-901-Q317
N026134	MW-58BR-Q317
N026114	MW-60BR-245-Q317
N026093	MW-62-065-Q317
N026093	MW-902-Q317
N026134	MW-62-110-Q317
N026093	MW-64BR-Q317
N026114	MW-65-160-Q317
N026114	MW-65-225-Q317
N026114	MW-68-180-Q317
N026114	MW-69-195-Q317
N026134	MW-72BR-200-Q317
N026134	MW-73-080-Q317

Thanks,
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Tuesday, September 26, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N026093 COC and Work Order Summary for Samples Received 9/25/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 9/25/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
www.assetlaboratories.com

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ASSET Laboratories

WORK ORDER Summary

26-Sep-17

WorkOrder: N026093

Client ID: ARCUS02

0801

Project: PG&E Topock - GMP, RC000753.801A **QC Level:** Level IV **Date Received:** 9/25/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026093-001A	MW-64BR-Q317	9/25/2017 1:40:00 PM	10/9/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-001B			10/9/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026093-001C			10/9/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026093-001D			10/9/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026093-002A	MW-62-065-Q317	9/25/2017 3:26:00 PM	10/9/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-002B			10/9/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026093-002C			10/9/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026093-002D			10/9/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026093-003A	MW-902-Q317	9/25/2017 3:36:00 PM	10/9/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-003B			10/9/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026093-003C			10/9/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026093-003D			10/9/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026093-004A	MW-705-Q317	9/25/2017 4:00:00 PM	10/9/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-005A	FOLDER	10/9/2017	10/9/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/9/2017		Folder	Folder	☐	☐	☐	LAB

for 10/13/2017

ASSET Laboratories

WORK ORDER Summary

26-Sep-17

WorkOrder: N026093

Client ID: ARCUS02 0801

Project: PG&E Topock - GMP, RC000753.~~801A~~ **QC Level:** Level IV **Date Received:** 9/25/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026093-005A	FOLDER	10/9/2017	10/9/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N026093

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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ASSET Laboratories Work Order: N026093

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October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026093

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 25, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026093

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N026093-001 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026093
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026093-001A	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-001B	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-001C	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-001D	MW-64BR-Q317	Groundwater	9/25/2017 1:40:00 PM	9/25/2017	10/13/2017
N026093-002A	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-002B	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-002C	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-002D	MW-62-065-Q317	Groundwater	9/25/2017 3:26:00 PM	9/25/2017	10/13/2017
N026093-003A	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-003B	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-003C	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-003D	MW-902-Q317	Groundwater	9/25/2017 3:36:00 PM	9/25/2017	10/13/2017
N026093-004A	MW-705-Q317	Groundwater	9/25/2017 4:00:00 PM	9/25/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 1:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170926C**	QC Batch: **R118114**			PrepDate			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	9/26/2017 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170926C**	QC Batch: **R118114**			PrepDate			Analyst: **LR**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	9/26/2017 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170926C**	QC Batch: **R118114**			PrepDate			Analyst: **LR**
Specific Conductance	6100	0.10	0.10		umhos/cm	1	9/26/2017 10:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026093-001DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**118114**
Client ID:	**ZZZZZZ**	Batch ID:	**R118114**	TestNo:	**EPA 120.1**			Analysis Date:	**9/26/2017**	SeqNo:	**2774218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12750.000	0.10						12770	0.157	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026093
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026093-001

Client Sample ID: MW-64BR-Q317
Collection Date: 9/25/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B** QC Batch: **R118137**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	9/27/2017 06:19 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/12/2017 06:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B**	QC Batch: **R118137**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	430	3.3	20		µg/L	100	9/26/2017 09:52 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	520	0.096	5.0		µg/L	5	10/12/2017 07:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B**	QC Batch: **R118137**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	450	3.3	20		µg/L	100	9/26/2017 10:20 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	500	0.096	5.0		µg/L	5	10/12/2017 07:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-705-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170926B**	QC Batch: **R118137**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/26/2017 10:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118137**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **PBW**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118137**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **LCSW**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.902	0.20	5.000	0	98.0	90	110				

Sample ID **N026093-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	927.640	20	500.0	429.4	99.7	90	110				

Sample ID **N026093-002AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	934.130	20	500.0	429.4	101	90	110	927.6	0.697	20	

Sample ID **N026093-003ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	450.370	20						445.6	1.08	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026093-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118137
Client ID:	ZZZZZZ	Batch ID:	R118137	TestNo:	EPA 218.6			Analysis Date:	9/26/2017	SeqNo:	2773781

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	955.660	20	500.0	445.6	102	90	110				

Sample ID	N026093-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118137
Client ID:	ZZZZZZ	Batch ID:	R118137	TestNo:	EPA 218.6			Analysis Date:	9/26/2017	SeqNo:	2773783

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.971	0.20	1.000	0	97.1	90	110				

Sample ID	N026093-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118137
Client ID:	ZZZZZZ	Batch ID:	R118137	TestNo:	EPA 218.6			Analysis Date:	9/27/2017	SeqNo:	2773822

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.893	1.0	5.000	0.3410	91.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63964	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	PBW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63964	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	LCSW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789562

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 1:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.051	0.022	0.050		mg/L	1	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	4.3	0.22	0.50		mg/L	10	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.8	0.22	0.50		mg/L	10	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118389	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	PBW	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784949

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118389	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	LCSW	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.8	85	115				

Sample ID	N026256-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784952

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.02610	0	20	

Sample ID	N026256-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784955

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.175	0.25	2.500	2.950	89.0	75	125				

Sample ID	N026256-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784956

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.432	0.25	2.500	2.950	99.3	75	125	5.174	4.86	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026093
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026093-001

Client Sample ID: MW-64BR-Q317
Collection Date: 9/25/2017 1:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	4.2	0.025	0.10		µg/L	1	10/12/2017 06:35 AM
Manganese	950	0.56	5.0		µg/L	10	10/12/2017 07:14 AM
Molybdenum	62	0.039	0.50		µg/L	1	10/12/2017 06:35 AM
Selenium	ND	0.028	0.50		µg/L	1	10/12/2017 06:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:26:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.6	0.025	0.10		µg/L	1	10/12/2017 07:03 AM
Manganese	2.8	0.056	0.50		µg/L	1	10/12/2017 07:03 AM
Molybdenum	14	0.039	0.50		µg/L	1	10/12/2017 07:03 AM
Selenium	3.4	0.028	0.50		µg/L	1	10/12/2017 07:03 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q317
Lab Order:	N026093	**Collection Date:**	9/25/2017 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026093-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Arsenic	1.5	0.025	0.10		µg/L	1	10/12/2017 07:08 AM
Manganese	3.0	0.056	0.50		µg/L	1	10/12/2017 07:08 AM
Molybdenum	14	0.039	0.50		µg/L	1	10/12/2017 07:08 AM
Selenium	3.6	0.028	0.50		µg/L	1	10/12/2017 07:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ANALYTICAL ENVIRONMENTAL SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State: CA
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Sample Temp: 2-1°C
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200 Fax:	
Title: SR. Technician	Phone: 916-786-3302 Fax:		
Signature: Date: 9-25-17	Sampled By: Gary Clift		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - GMP	Signature: Date: 9/25/2017		
Project Number: RC000753.0801			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Metals Dissolved (6020AFF), Manganese; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026093 - 01	MW-64BR-Q317	9/25/2017	13:40		X		X	X	X	X	X		X					E	4	P	BN	
2	- 02	MW-62-065-Q317	9/25/2017	15:26		X		X	X	X	X	X		X					E	4	P	BN	
3	- 03	MW-902-Q317	9/25/2017	15:36		X		X	X	X	X	X		X					E	4	P	BN	
4	- 04	MW-705-Q317	9/25/2017	16:00		X													E	1	P	BN	
5																							
6																							
7																							
8																							
9																							
10																							

Courier: Lab
Tracking No.:

Reliquished by (Signature and Printed Name):	Date/Time: 9-25-17 1620	Reliquished by (Signature and Printed Name): Date/Time: 9-25-17 1620
Reliquished by (Signature and Printed Name):	Date/Time: 9/25/17 1827	Reliquished by (Signature and Printed Name): Date/Time: 9/25/17 1827
Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/25/2017	Workorder:	N026093
Rep sample Temp (Deg C):	2.1	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/2/2017

Reviewed By: 10/6/2017

Sonny Lorenzo

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, October 04, 2017 9:26 AM
To: 'Madsen, Laura'; 'ASSET LV Sample Control'; 'Fernando Rivera'
Cc: 'Bush, Dan'; 'Serna, Erica'; 'Jeffers, Gantt'; 'Clift, Gary'; 'Kalib Sumter'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'; 'Yoandra Rodriguez'
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017

We will process this Laura.

Sonny/Andrea – Please add in LIMS and inform the analyst ASAP.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:25 AM
To: ASSET LV Sample Control; Marlon B. Cartin; 'Fernando Rivera'
Cc: Madsen, Laura; Bush, Dan; Serna, Erica; Jeffers, Gantt; Clift, Gary; Kalib Sumter
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017
Importance: High

Hi Marlon,
Please revise the following SDGs to include dissolved arsenic. It was missed on the COC.

N026114	MW-38S-Q317
N026114	MW-38S-SMT-Q317
N026114	MW-901-Q317
N026134	MW-58BR-Q317
N026114	MW-60BR-245-Q317
N026093	MW-62-065-Q317
N026093	MW-902-Q317
N026134	MW-62-110-Q317
N026093	MW-64BR-Q317
N026114	MW-65-160-Q317
N026114	MW-65-225-Q317
N026114	MW-68-180-Q317
N026114	MW-69-195-Q317
N026134	MW-72BR-200-Q317
N026134	MW-73-080-Q317

Thanks,
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Tuesday, September 26, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N026093 COC and Work Order Summary for Samples Received 9/25/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 9/25/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
www.assetlaboratories.com

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ASSET Laboratories

WORK ORDER Summary

26-Sep-17

WorkOrder: N026093

Client ID: ARCUS02

0801

Project: PG&E Topock - GMP, RC000753.801A **QC Level:** Level IV **Date Received:** 9/25/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026093-001A	MW-64BR-Q317	9/25/2017 1:40:00 PM	10/9/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-001B			10/9/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026093-001C			10/9/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026093-001D			10/9/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026093-002A	MW-62-065-Q317	9/25/2017 3:26:00 PM	10/9/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-002B			10/9/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026093-002C			10/9/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026093-002D			10/9/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026093-003A	MW-902-Q317	9/25/2017 3:36:00 PM	10/9/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-003B			10/9/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/9/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026093-003C			10/9/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026093-003D			10/9/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026093-004A	MW-705-Q317	9/25/2017 4:00:00 PM	10/9/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026093-005A	FOLDER	10/9/2017	10/9/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/9/2017		Folder	Folder	☐	☐	☐	LAB

for 10/13/2017 **31**

ASSET Laboratories

WORK ORDER Summary

26-Sep-17

WorkOrder: N026093

Client ID: ARCUS02 0801

Project: PG&E Topock - GMP, RC000753.~~801A~~ **QC Level:** Level IV **Date Received:** 9/25/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026093-005A	FOLDER	10/9/2017	10/9/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N026093**

NAME	TEST METHOD
Claire Ignacio	EPA 6020
Quennie Manimtim	SM 4500-NO3F
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118114 **Analyst:** LSR

ASSET #: N026093 **Date Analyzed:** 9/26/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below the PQL .			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/29/2017

2nd Level Reviewer: 10/9/2017 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 9/26/17 1036

Analyst: LSR

	Standard	Std ID	Reading	Comments
	9.25 mS/cm	CINV - 170620B	9.34 mS/cm @19.9°C	% Rec: (90-110%)
	1410	170822C	1416 @19.9°C	
	9976	170615H	9960 @19.9°C	
	99672	170822E	99500 @19.9°C	

	Sample ID	Matrix	Reading	Comments
1	ND26093-001D	H2O	12770 @20.8C	
2	1DDUP		12750 @20.7C	
3	2D		6240 @20.4C	
4	3D		6140 @20.8C	
5				
6				Julia Ramit 9/29/2017
7				
8	1413 mS/cm	CINV - 170615F	1407 mS/cm @21.0°C	
9	10000	170125E	98200 @21.0°C	
10	99672	170831B	95100 @21.0°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 9/27/17 1330

Analyst: LSR

	Standard	Std ID	Reading	Comments
	9.25 mS/cm	CINV - 170620B	9.49 mS/cm @24.1°C	% Rec: (90-110%)
	1410	170822C	1419 @24.1°C	
	9976	170615H	10020 @24.0°C	
	99672	170822E	99600 @24.0°C	

	Sample ID	Matrix	Reading	Comments
1	ND26114-001D	H2O	15580 @19.9C	
2	1DDUP		15557 @20.4°C	
3	2D		3290 @20.8C	
4	3D		7860 @20.2C	
5	4D		2920 @20.3C	
6	5D		1461 @20.5C	
7	6D		1474 @20.8C	
8	7D		1516 @20.5C	
9	8D		3680 @20.6C	
10	1413 mS/cm	CINV - 170615F	1407 @24.1°C	
Dup	10000	170125E	96300 @24.2C	Accept: 10% water, 20% soil
	Std Chk: 99672	170831B	99300 @24.0°C	% Rec: (90-110%)

Logbook # 5

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R118137
ASSET #: N026093

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 9/26/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)	X			X		
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments: Dilution was necessary for N026093-001A due to matrix interference. MS was not recovered at 1X.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba Date: 10/01/2017

2nd Level Reviewer: 10/9/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N026093-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.2939 * 100$$

$$Cr^{+6}, \mu g/L = 429.39$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 430}$$

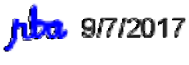
rba 10/01/2017

ANALYSIS RUN LOG

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported



Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 9/7/2017

INJECTION LOG: 170926B

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/26/17 8:45 PM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/26/17 8:55 PM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/26/17 9:05 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/26/17 9:14 PM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/26/17 9:24 PM	Reported
15	MB-R118137	MBLK	1	Hexavalent Chromium	09/26/17 9:33 PM	Reported
16	LCS-R118137	LCS	1	Hexavalent Chromium	09/26/17 9:43 PM	Reported
17	N026093-002A	SAMP	100	Hexavalent Chromium	09/26/17 9:52 PM	Reported
18	N026093-002AMS	MS	100	Hexavalent Chromium	09/26/17 10:02 PM	Reported
19	N026093-002AMSD	MSD	100	Hexavalent Chromium	09/26/17 10:11 PM	Reported
20	N026093-003A	SAMP	100	Hexavalent Chromium	09/26/17 10:20 PM	Reported
21	N026093-003ADUP	DUP	100	Hexavalent Chromium	09/26/17 10:30 PM	Reported
22	N026093-003AMS	MS	100	Hexavalent Chromium	09/26/17 10:39 PM	Reported
23	N026093-004A	SAMP	1	Hexavalent Chromium	09/26/17 10:49 PM	Reported
24	N026093-004AMS	MS	1	Hexavalent Chromium	09/26/17 10:58 PM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/26/17 11:08 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/26/17 11:19 PM	Reported
27	N026093-001A	SAMP	1	Hexavalent Chromium	09/26/17 11:29 PM	Not Reported
28	N026093-001AMS	MS	1	Hexavalent Chromium	09/26/17 11:38 PM	Not Reported
29	N026112-006C	SAMP	1	Hexavalent Chromium	09/26/17 11:59 PM	Reported
30	N026112-007D	SAMP	2000	Hexavalent Chromium	09/27/17 12:10 AM	Reported
31	N026113-010C	SAMP	1	Hexavalent Chromium	09/27/17 12:20 AM	Not Reported
32	N026112-010C	SAMP	200	Hexavalent Chromium	09/27/17 12:29 AM	Not Reported
33	N026112-008C	SAMP	500	Hexavalent Chromium	09/27/17 12:39 AM	Reported
34	N026112-009C	SAMP	500	Hexavalent Chromium	09/27/17 12:48 AM	Reported
35	N026113-008C	SAMP	1	Hexavalent Chromium	09/27/17 12:57 AM	Not Reported
36	N026113-009C	SAMP	1	Hexavalent Chromium	09/27/17 1:07 AM	Not Reported
37	CCV-3	CCV	1	Hexavalent Chromium	09/27/17 1:16 AM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	09/27/17 1:26 AM	Reported
39	N026113-010C	SAMP	100	Hexavalent Chromium	09/27/17 1:35 AM	Reported
40	N026112-010C	SAMP	500	Hexavalent Chromium	09/27/17 1:45 AM	Reported
41	N026113-001D	SAMP	1	Hexavalent Chromium	09/27/17 1:54 AM	Reported
42	N026113-002D	SAMP	1	Hexavalent Chromium	09/27/17 2:04 AM	Reported

INJECTION LOG: 170926B

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026113-004D	SAMP	1	Hexavalent Chromium	09/27/17 2:13 AM	Reported
44	N026113-006D	SAMP	1	Hexavalent Chromium	09/27/17 2:23 AM	Reported
45	N026113-008C	SAMP	100	Hexavalent Chromium	09/27/17 2:32 AM	Reported
46	N026113-009CMS	MS	1	Hexavalent Chromium	09/27/17 2:42 AM	Not Reported
47	N026111-001D	SAMP	1	Hexavalent Chromium	09/27/17 2:51 AM	Reported
48	N026111-004B	SAMP	1	Hexavalent Chromium	09/27/17 3:00 AM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	09/27/17 3:10 AM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	09/27/17 3:19 AM	Reported
51	N026112-006CREP	DUP	1	Hexavalent Chromium	09/27/17 3:29 AM	Reported
52	N026112-007DREP	DUP	2000	Hexavalent Chromium	09/27/17 3:38 AM	Reported
53	N026113-010CREP	DUP	100	Hexavalent Chromium	09/27/17 3:48 AM	Reported
54	N026112-010CREP	DUP	500	Hexavalent Chromium	09/27/17 3:57 AM	Reported
55	N026112-008CREP	DUP	500	Hexavalent Chromium	09/27/17 4:07 AM	Reported
56	N026112-009CREP	DUP	500	Hexavalent Chromium	09/27/17 4:16 AM	Reported
57	N026113-008CREP	DUP	100	Hexavalent Chromium	09/27/17 4:26 AM	Reported
58	N026111-001DMS	MS	1	Hexavalent Chromium	09/27/17 4:35 AM	Reported
59	N026113-009CREP	DUP	1	Hexavalent Chromium	09/27/17 4:45 AM	Not Reported
60	N026113-001DREP	DUP	1	Hexavalent Chromium	09/27/17 4:54 AM	Not Reported
61	CCV-5	CCV	1	Hexavalent Chromium	09/27/17 5:03 AM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	09/27/17 5:13 AM	Reported
63	N026113-002DREP	DUP	1	Hexavalent Chromium	09/27/17 5:22 AM	Reported
64	N026113-004DREP	DUP	1	Hexavalent Chromium	09/27/17 5:32 AM	Reported
65	N026113-006DREP	DUP	1	Hexavalent Chromium	09/27/17 5:41 AM	Reported
66	N026111-004BREP	DUP	1	Hexavalent Chromium	09/27/17 5:51 AM	Reported
67	N026113-009C	SAMP	5	Hexavalent Chromium	09/27/17 6:00 AM	Reported
68	N026113-009CMS	MS	5	Hexavalent Chromium	09/27/17 6:10 AM	Reported
69	N026093-001A	SAMP	5	Hexavalent Chromium	09/27/17 6:19 AM	Reported
70	N026093-001AMS	MS	5	Hexavalent Chromium	09/27/17 6:29 AM	Reported
71	N026111-001DREP	DUP	1	Hexavalent Chromium	09/27/17 6:38 AM	Reported
72	N026113-009CREP	DUP	5	Hexavalent Chromium	09/27/17 6:48 AM	Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	09/27/17 6:57 AM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	09/27/17 7:06 AM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170926B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**27/Sep/17 07:37:16**
No. of Injections:	**77**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/26/2017 20:45	Finished	BLANK
11	BLANK	2	1000	Unknown		09/26/2017 20:55	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/26/2017 21:05	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/26/2017 21:14	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/26/2017 21:24	Finished	CCB R170912A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/26/2017 21:33	Finished	MB R170912A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/26/2017 21:43	Finished	LCS, IWST-170622D
17	N026093-002A,SAMF	8	1000	Unknown		09/26/2017 21:52	Finished	SAMP,0.1>10mL
18	N026093-002AMS,MS	9	1000	Unknown		09/26/2017 22:02	Finished	MS (5ppb), IWST-170622D,0.1
19	N026093-002AMSD,M	10	1000	Unknown		09/26/2017 22:11	Finished	MSD (5ppb), IWST-170622D,0
20	N026093-003A,SAMF	11	1000	Unknown		09/26/2017 22:20	Finished	SAMP,0.1>10mL
21	N026093-003ADUP,D	12	1000	Unknown		09/26/2017 22:30	Finished	DUP,0.1>10mL
22	N026093-003AMS,MS	13	1000	Unknown		09/26/2017 22:39	Finished	MS (5ppb), IWST-170622D,0.1
23	N026093-004A,SAMF	14	1000	Unknown		09/26/2017 22:49	Finished	SAMP,10mL
24	N026093-004AMS,MS	15	1000	Unknown		09/26/2017 22:58	Finished	MS (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	16	1000	Unknown		09/26/2017 23:08	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		09/26/2017 23:19	Finished	CCB R170921A
27	N026093-001A,SAMF	18	1000	Unknown		09/26/2017 23:29	Finished	SAMP,1>10mL
28	N026093-001AMS,MS	19	1000	Unknown		09/26/2017 23:38	Finished	MS (1ppb), IWST-170622D,1>
29	N026112-006C,SAMF	1	1000	Unknown		09/26/2017 23:59	Finished	SAMP,10mL
30	N026112-007D,SAMF	2	1000	Unknown		09/27/2017 00:10	Finished	SAMP,0.005>10mL
31	N026113-010C,SAMF	3	1000	Unknown		09/27/2017 00:20	Finished	SAMP,10mL
32	N026112-010C,SAMF	4	1000	Unknown		09/27/2017 00:29	Finished	SAMP,0.05>10mL
33	N026112-008C,SAMF	5	1000	Unknown		09/27/2017 00:39	Finished	SAMP,0.02>10mL
34	N026112-009C,SAMF	6	1000	Unknown		09/27/2017 00:48	Finished	SAMP,0.02>10mL
35	N026113-008C,SAMF	7	1000	Unknown		09/27/2017 00:57	Finished	SAMP,10mL
36	N026113-009C,SAMF	8	1000	Unknown		09/27/2017 01:07	Finished	SAMP,10mL
37	CCV-3,CCV,1,	9	1000	Unknown		09/27/2017 01:16	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	10	1000	Unknown		09/27/2017 01:26	Finished	CCB R170921A
39	N026113-010C,SAMF	11	1000	Unknown		09/27/2017 01:35	Finished	SAMP,0.1>10mL
40	N026112-010C,SAMF	12	1000	Unknown		09/27/2017 01:45	Finished	SAMP,0.02>10mL
41	N026113-001D,SAMF	13	1000	Unknown		09/27/2017 01:54	Finished	SAMP,10mL
42	N026113-002D,SAMF	14	1000	Unknown		09/27/2017 02:04	Finished	SAMP,10mL
43	N026113-004D,SAMF	15	1000	Unknown		09/27/2017 02:13	Finished	SAMP,10mL
44	N026113-006D,SAMF	16	1000	Unknown		09/27/2017 02:23	Finished	SAMP,10mL
45	N026113-008C,SAMF	17	1000	Unknown		09/27/2017 02:32	Finished	SAMP,0.1>10mL
46	N026113-009CMS,MS	18	1000	Unknown		09/27/2017 02:42	Finished	MS (1ppb), IWST-170622D,10
47	N026111-001D,SAMF	19	1000	Unknown		09/27/2017 02:51	Finished	SAMP,10mL
48	N026111-004B,SAMF	20	1000	Unknown		09/27/2017 03:00	Finished	SAMP,10mL
49	CCV-4,CCV1,1,	21	1000	Unknown		09/27/2017 03:10	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	22	1000	Unknown		09/27/2017 03:19	Finished	CCB R170921A
51	N026112-006CREP,D	23	1000	Unknown		09/27/2017 03:29	Finished	REP,10mL
52	N026112-007DREP,D	24	1000	Unknown		09/27/2017 03:38	Finished	REP,0.005>10mL
53	N026113-010CREP,D	25	1000	Unknown		09/27/2017 03:48	Finished	REP,0.1>10mL
54	N026112-010CREP,D	26	1000	Unknown		09/27/2017 03:57	Finished	REP,0.02>10mL
55	N026112-008CREP,D	27	1000	Unknown		09/27/2017 04:07	Finished	REP,0.02>10mL
56	N026112-009CREP,D	28	1000	Unknown		09/27/2017 04:16	Finished	REP,0.02>10mL
57	N026113-008CREP,D	29	1000	Unknown		09/27/2017 04:26	Finished	REP,0.1>10mL
58	N026111-001DMS,MS	30	1000	Unknown		09/27/2017 04:35	Finished	MS (1ppb), IWST-170622D,10
59	N026113-009CREP,D	31	1000	Unknown		09/27/2017 04:45	Finished	REP,10mL
60	N026113-001DREP,D	32	1000	Unknown		09/27/2017 04:54	Finished	REP,10mL

61	CCV-5,CCV,1,	33	1000	Unknown		09/27/2017 05:03	Finished	CCV @5ppb, IWST-170622C
62	CCB-5,CCB,1,	34	1000	Unknown		09/27/2017 05:13	Finished	CCB R170921A
63	N026113-002DREP,D	35	1000	Unknown		09/27/2017 05:22	Finished	REP,10mL
64	N026113-004DREP,D	36	1000	Unknown		09/27/2017 05:32	Finished	REP,10mL
65	N026113-006DREP,D	37	1000	Unknown		09/27/2017 05:41	Finished	REP,10mL
66	N026111-004BREP,D	38	1000	Unknown		09/27/2017 05:51	Finished	REP,10mL
67	N026113-009C,SAMP	39	1000	Unknown		09/27/2017 06:00	Finished	SAMP,2>10mL
68	N026113-009CMS,MS	40	1000	Unknown		09/27/2017 06:10	Finished	MS (1ppb), IWST-170622D,2>
69	N026093-001A,SAMP	41	1000	Unknown		09/27/2017 06:19	Finished	SAMP,2>10mL
70	N026093-001AMS,MS	42	1000	Unknown		09/27/2017 06:29	Finished	MS (1ppb), IWST-170622D,2>
71	N026111-001DREP,D	43	1000	Unknown		09/27/2017 06:38	Finished	REP,10mL
72	N026113-009CREP,D	44	1000	Unknown		09/27/2017 06:48	Finished	REP,2>10mL
73	CCV-6,CCV1,1,	45	1000	Unknown		09/27/2017 06:57	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	46	1000	Unknown		09/27/2017 07:06	Finished	CCB R170921A
75	SHUTDOWN	47	1000	Unknown		09/27/2017 07:16	Finished	
76	Eluent: R170920A	48	1000	Unknown		n.a.	Finished	Eluent
77	PCR: R170925A	49	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 9/25/17
Time Prepared: 1021H
Prepared By: MBA

Slope: 101.0%
pH 4: 4.11 @ 19.8°C
7: 6.98 @ 19.3°C
10: 10.00 @ 19.6°C
LCS:

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M70920A
NH4OH + NH4SO4 buffer: client preserved

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N0~~25~~26077-001A	8.78	–	~~100ml~~ 50ml	~~200ml~~ 50ml		
2)	2A	8.82	–	~50ml	~50ml		
3)	3A	8.80	–	~50ml	~50ml		
4)	4A	8.72	–	~100ml	~100ml		
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 9/26/17
Time Prepared: 2058H
Prepared By: MBA

Slope: 97.4%
pH 4: 4.96 @ 21.3°C
7: 6.99 @ 21.4°C
10: 10.05 @ 21.1°C
LCS: 7.00 @ 23.3°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: M70920A
NH4OH + NH4SO4 buffer: M70921A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026093-001A	9.64	–	~250ml	~250ml		M70921A
2)	2A	9.53	–				
3)	3A	9.48	–				
4)	4A	9.56	–				
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

rba 10/01/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/5/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2580	1.2987	2.5943	3.9068	5.1811	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST160817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ICV**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2773768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.943	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2773769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.191	0.20	0.2000	0	95.2	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCV**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.982	0.20	5.000	0	99.6	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.188	0.20	0.2000	0	94.2	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.126	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCV**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.114	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773802**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.230	0.20	10.00	0	102	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCV**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.104	0.20	5.000	0	102	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ZZZZZZ**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.198	0.20	10.00	0	102	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **ICB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2773770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/26/2017**	SeqNo: **2773785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118137**
Client ID: **CCB**	Batch ID: **R118137**	TestNo: **EPA 218.6**		Analysis Date: **9/27/2017**	SeqNo: **2773826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/26/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.073	
CCV-2	4.073	
CCV-3	4.073	
CCV-4	4.073	
CCV-5	4.065	
CCV-6	4.065	
Average	4.070	
Actual RT Window	3.990 - 4.150	
Applied RT Window	3.870 - 4.270	
MB-R118137	N.A.	N.A.
LCS-R118137	4.073	PASS
N026093-002A	4.073	PASS
N026093-002AMS	4.073	PASS
N026093-002AMSD	4.073	PASS
N026093-003A	4.073	PASS
N026093-003ADUP	4.073	PASS
N026093-003AMS	4.073	PASS
N026093-004A	N.A.	N.A.
N026093-004AMS	4.073	PASS
N026093-001A	N.A.	N.A.
N026093-001AMS	N.A.	N.A.
N026112-006C	N.A.	N.A.
N026112-007D	4.081	PASS
N026113-010C	4.048	PASS
N026112-010C	4.081	PASS
N026112-008C	4.081	PASS
N026112-009C	4.073	PASS
N026113-008C	4.056	PASS
N026113-009C	4.031	PASS
N026113-010C	4.073	PASS
N026112-010C	4.073	PASS
N026113-001D	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/26/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.073	
CCV-2	4.073	
CCV-3	4.073	
CCV-4	4.073	
CCV-5	4.065	
CCV-6	4.065	
Average	4.070	
Actual RT Window	3.990 - 4.150	
Applied RT Window	3.870 - 4.270	
N026113-002D	4.065	PASS
N026113-004D	N.A.	N.A.
N026113-006D	N.A.	N.A.
N026113-008C	4.073	PASS
N026113-009CMS	4.040	PASS
N026111-001D	N.A.	N.A.
N026111-004B	4.065	PASS
N026112-006CREP	N.A.	N.A.
N026112-007DREP	4.073	PASS
N026113-010CREP	4.073	PASS
N026112-010CREP	4.073	PASS
N026112-008CREP	4.073	PASS
N026112-009CREP	4.073	PASS
N026113-008CREP	4.073	PASS
N026111-001DMS	4.023	PASS
N026113-009CREP	N.A.	N.A.
N026113-001DREP	N.A.	N.A.
N026113-002DREP	4.056	PASS
N026113-004DREP	N.A.	N.A.
N026113-006DREP	N.A.	N.A.
N026111-004BREP	4.056	PASS
N026113-009C	N.A.	N.A.
N026113-009CMS	4.065	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/26/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.073	
CCV-2	4.073	
CCV-3	4.073	
CCV-4	4.073	
CCV-5	4.065	
CCV-6	4.065	
Average	4.070	
Actual RT Window	3.990 - 4.150	
Applied RT Window	3.870 - 4.270	
N026093-001A	3.998	PASS
N026093-001AMS	4.031	PASS
N026111-001DREP	N.A.	N.A.
N026113-009CREP	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

INITIAL CALIBRATION



RAW DATA

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported

rba 9/7/2017

9/12/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

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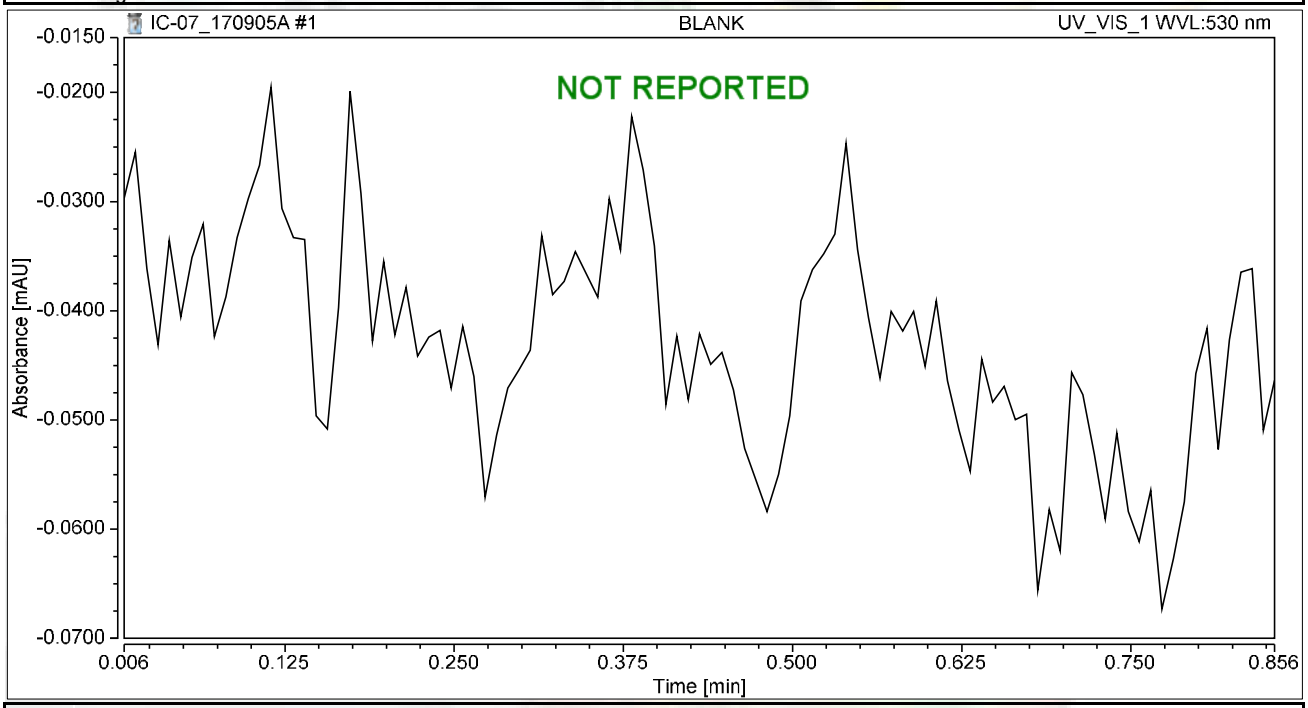
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.85**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 08:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

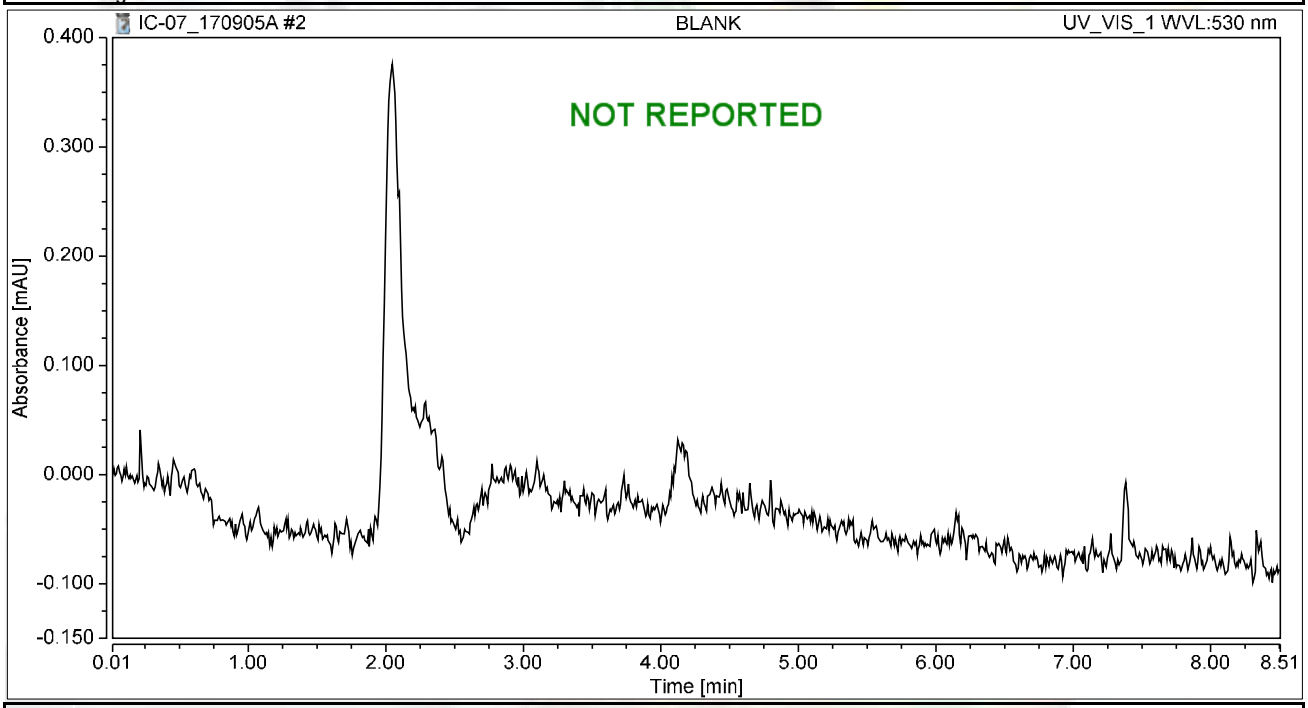
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

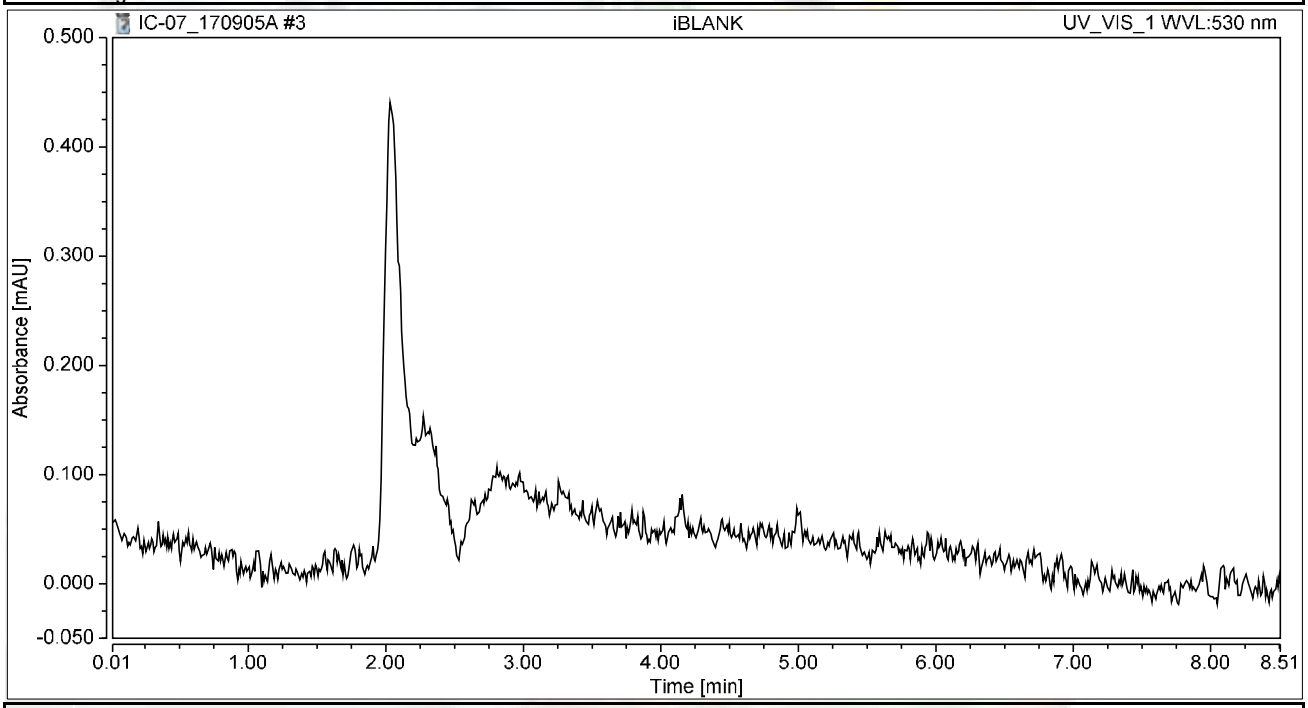
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

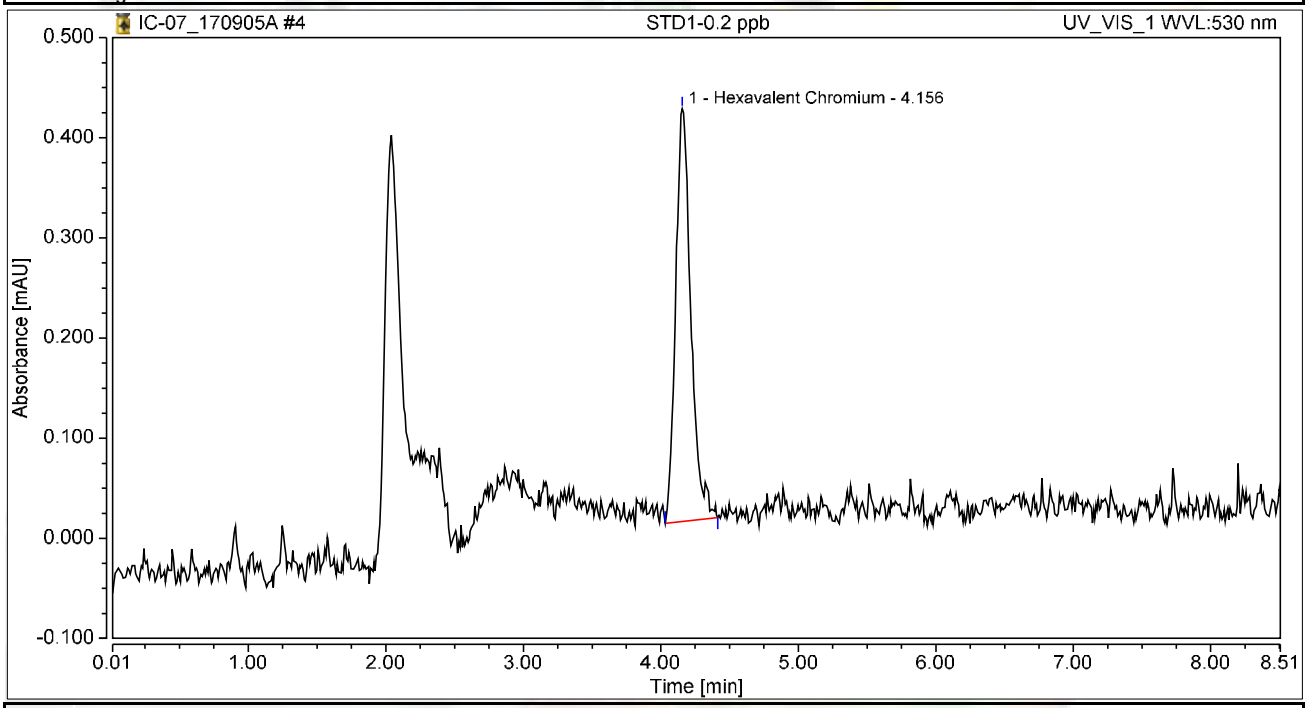
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

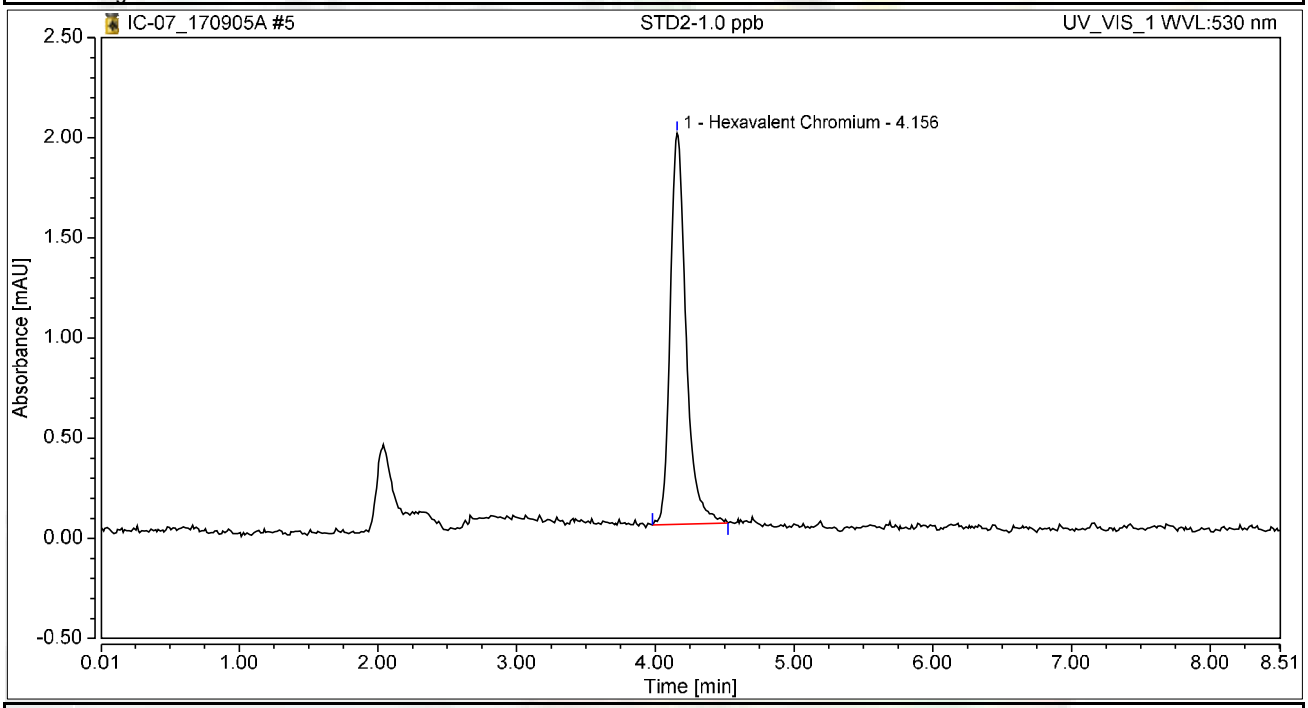
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.053	0.412	100.00	100.00	0.2029
Total:			**0.053**	**0.412**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

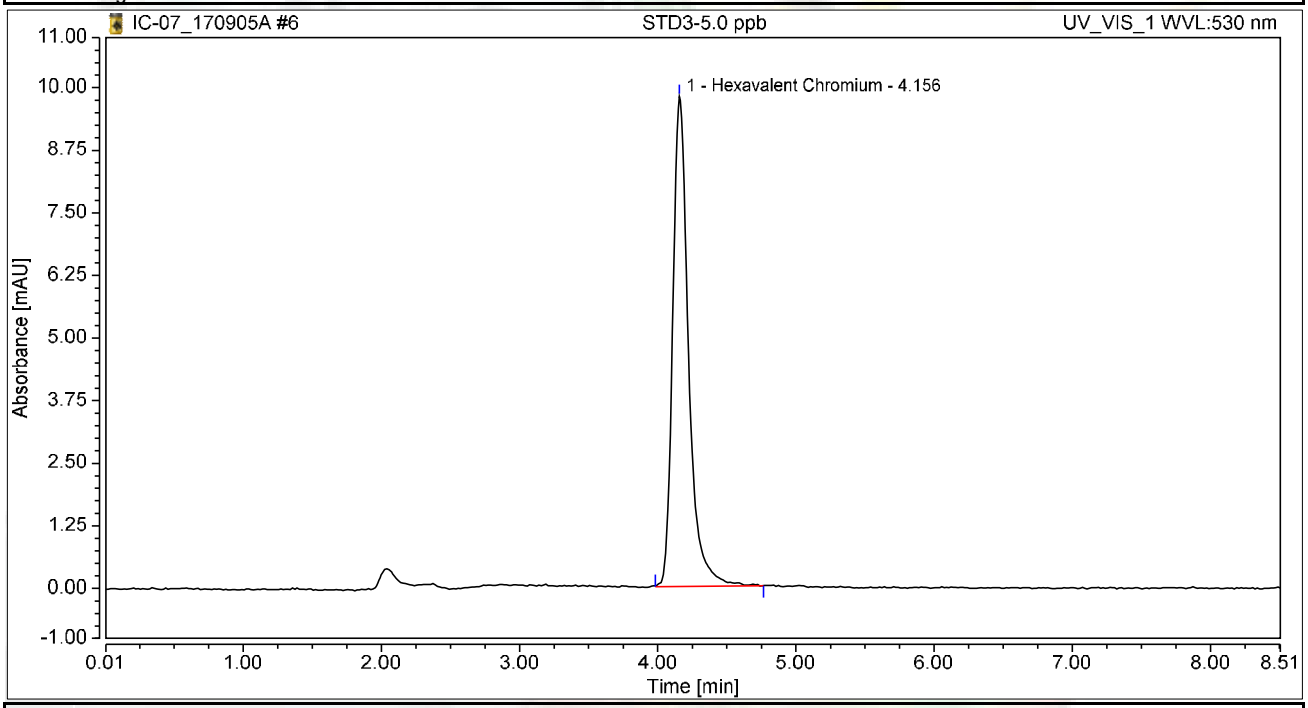
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.258	1.952	100.00	100.00	0.9942
Total:			**0.258**	**1.952**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

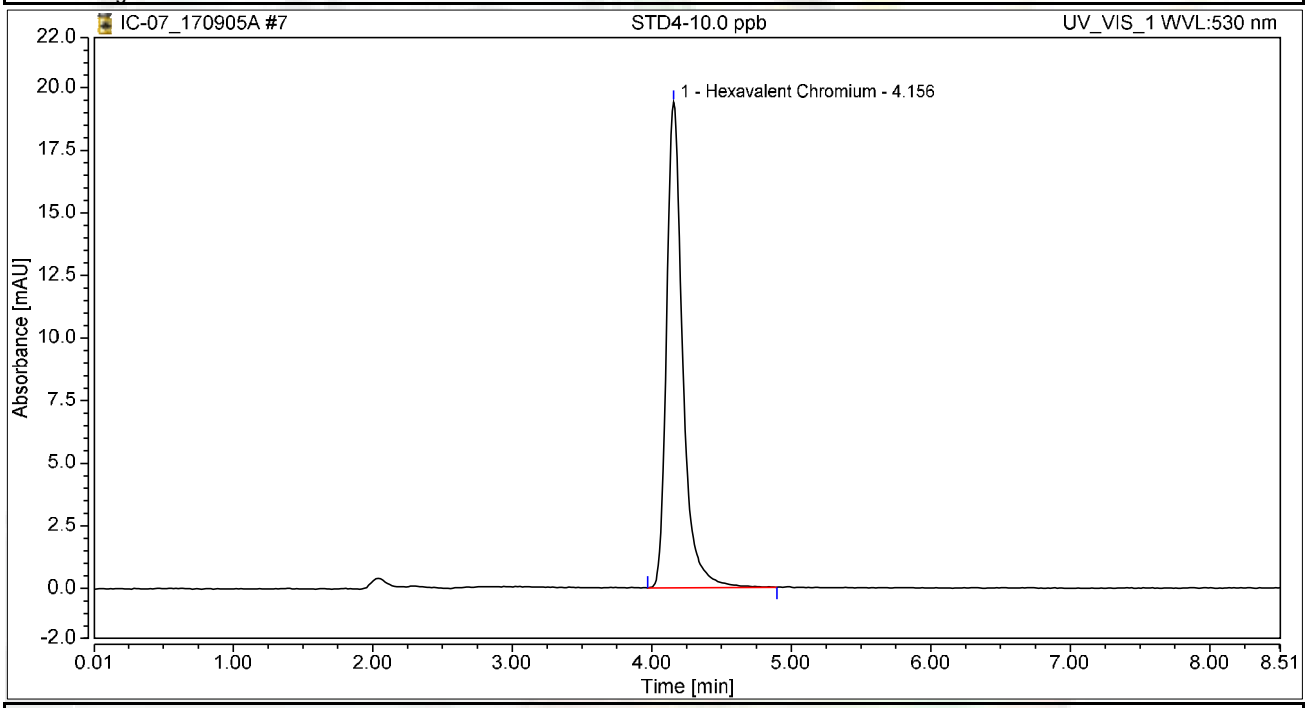
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.299	9.782	100.00	100.00	5.0039
Total:			**1.299**	**9.782**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

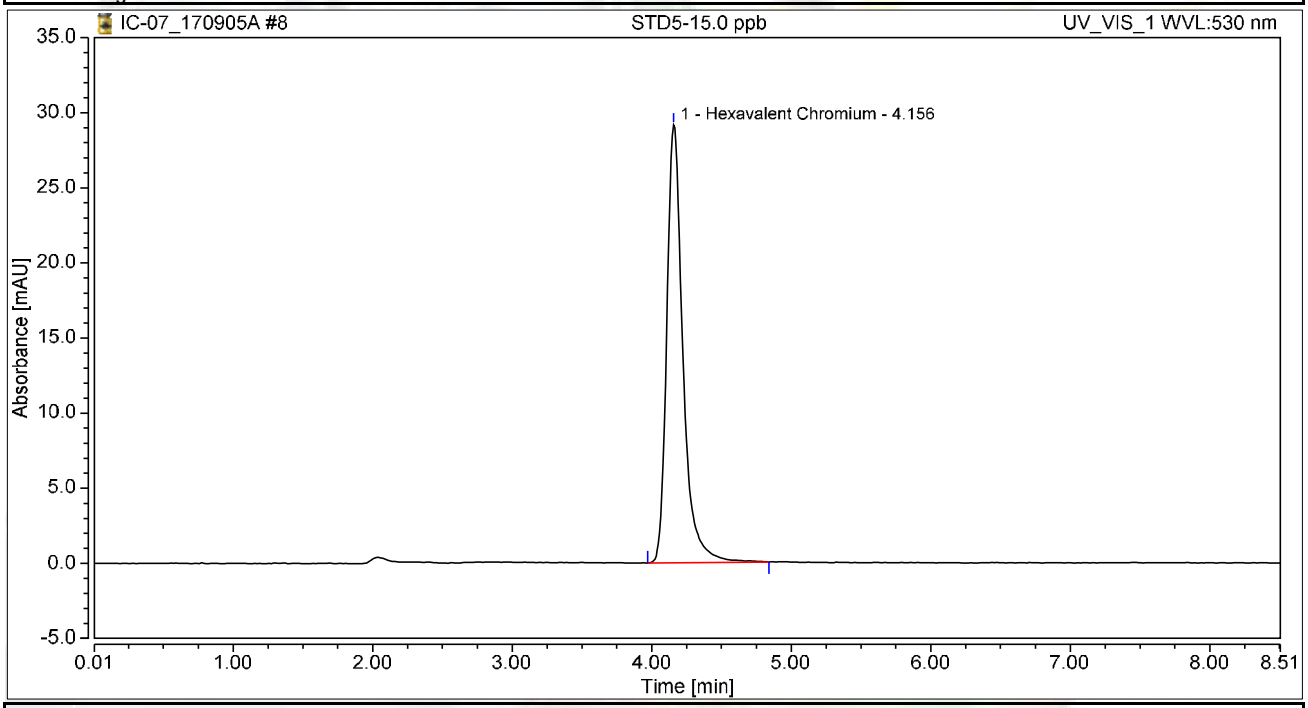
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	2.594	19.389	100.00	100.00	9.9955
Total:			**2.594**	**19.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

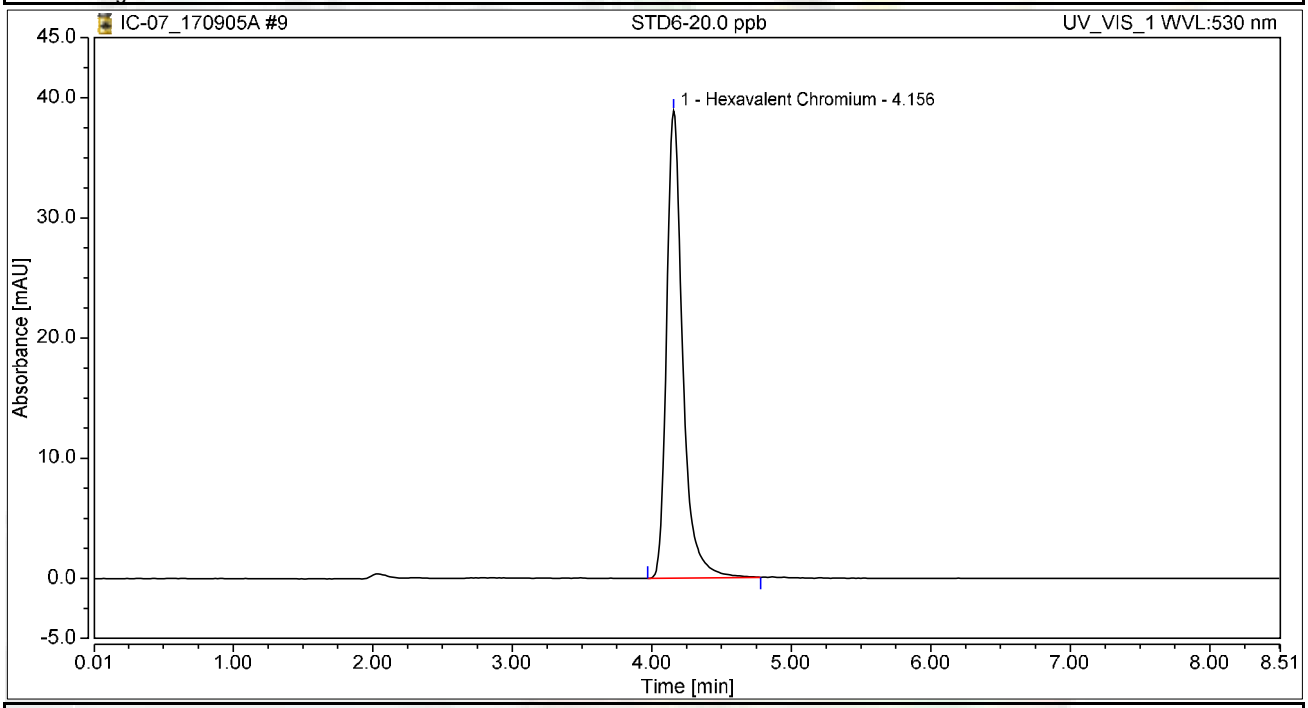
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	3.907	29.134	100.00	100.00	15.0524
Total:			**3.907**	**29.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:25**	*Sample Weight:*	**1.0000**

Chromatogram



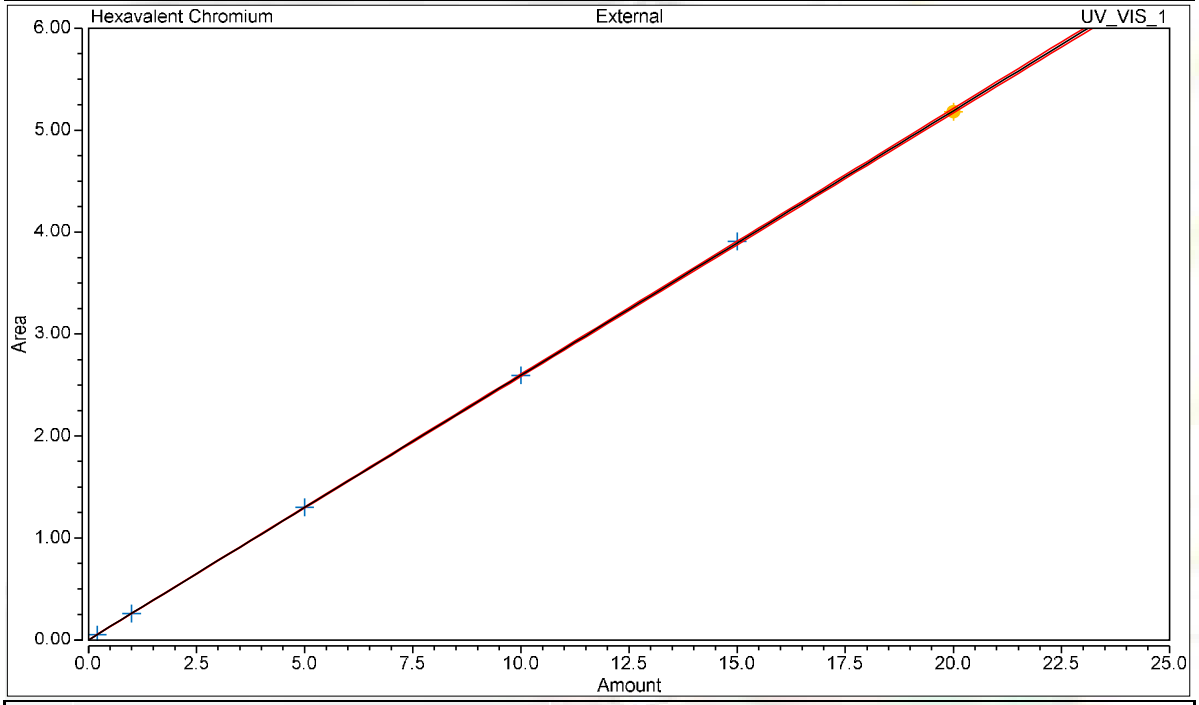
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	5.181	38.869	100.00	100.00	19.9622
Total:			**5.181**	**38.869**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

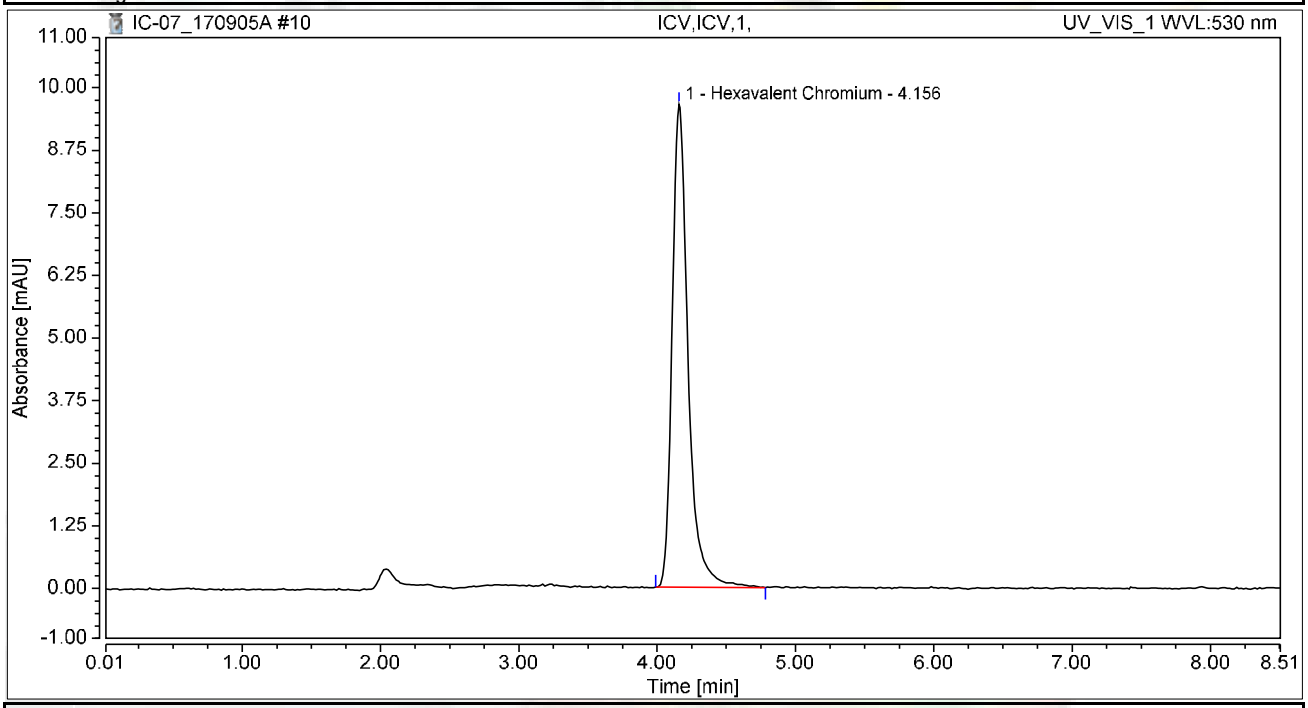
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.412
5	STD2-1.0 ppb	02	1.0000	0.2580	0.258	1.952
6	STD3-5.0 ppb	03	5.0000	1.2987	1.299	9.782
7	STD4-10.0 ppb	04	10.0000	2.5943	2.594	19.389
8	STD5-15.0 ppb	05	15.0000	3.9068	3.907	29.134
9	STD6-20.0 ppb	06	20.0000	5.1811	5.181	38.869

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

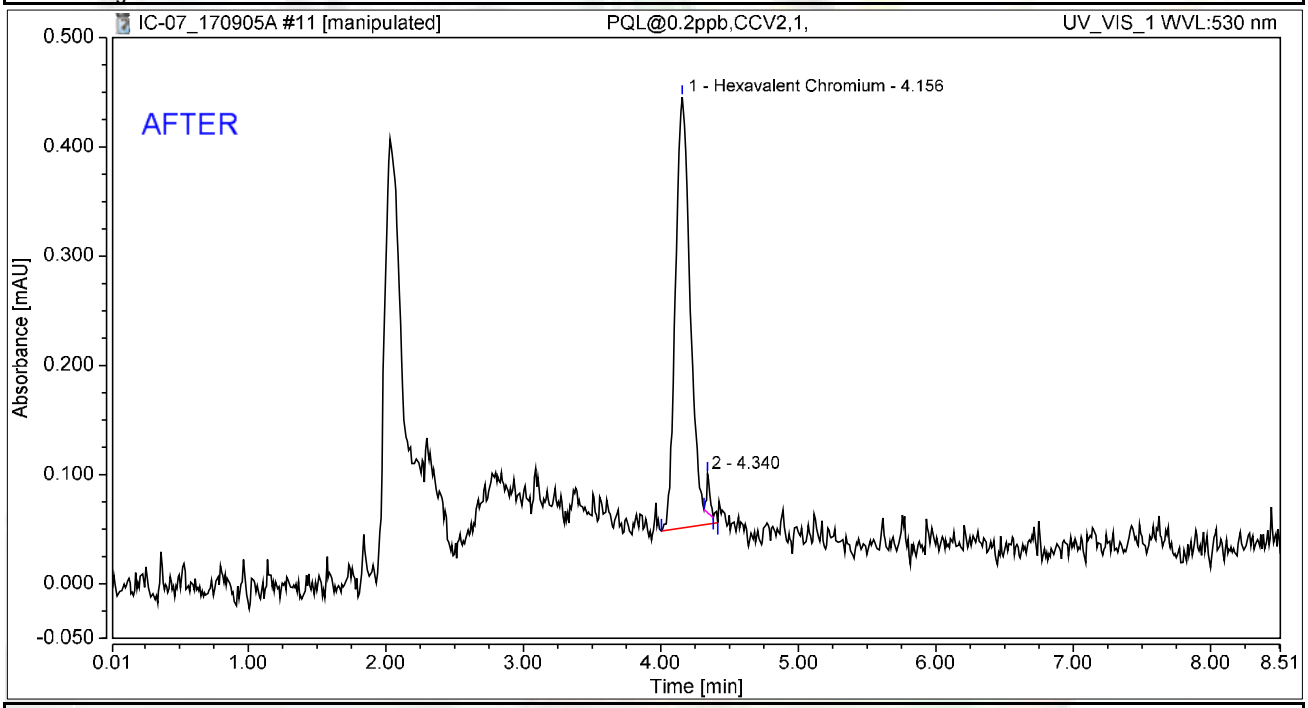
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.283	9.638	100.00	100.00	4.9425
Total:			**1.283**	**9.638**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.049	0.394	97.99	91.72	0.1905
2		4.340	0.001	0.036	2.01	8.28	n.a.
Total:			**0.050**	**0.430**	**100.00**	**100.00**	

rba 9/7/2017

Reviewed by: Nancy 9/12/2017

My first report/Integration

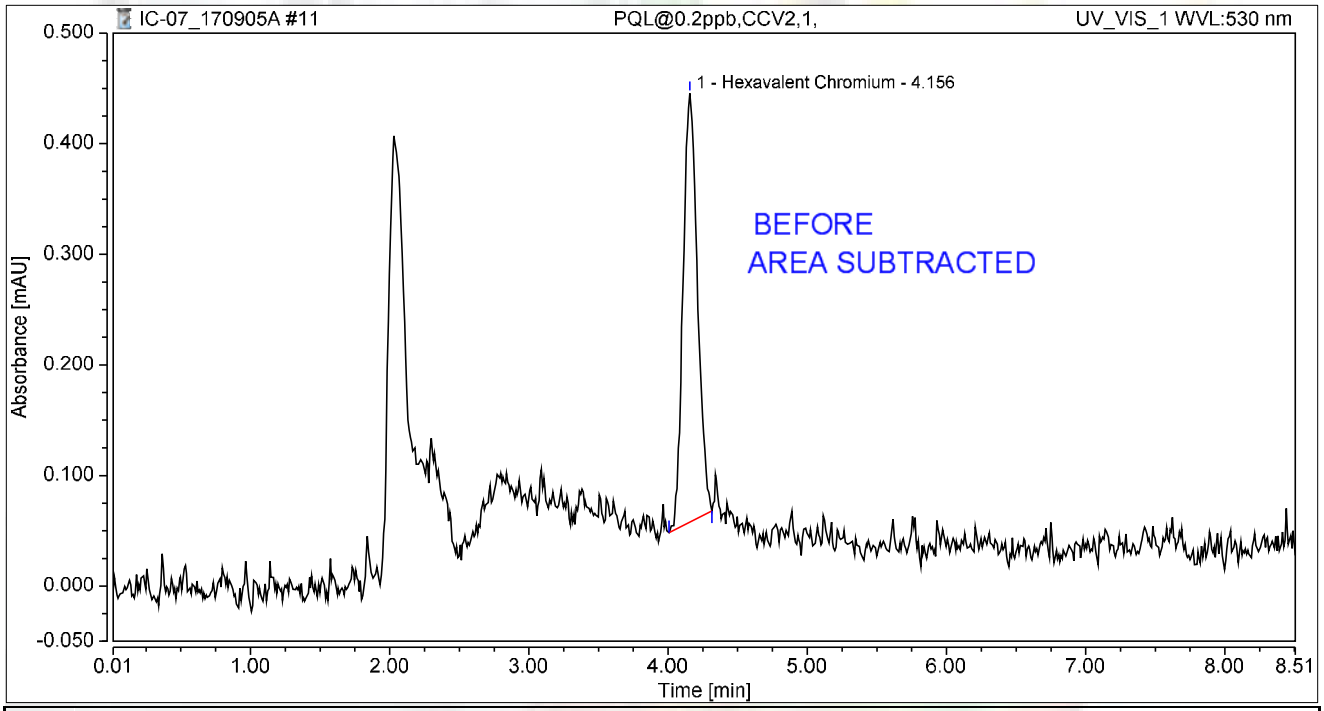
Chromeleon (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.046	0.387	100.00	100.00	0.1788
Total:			**0.046**	**0.387**	**100.00**	**100.00**	

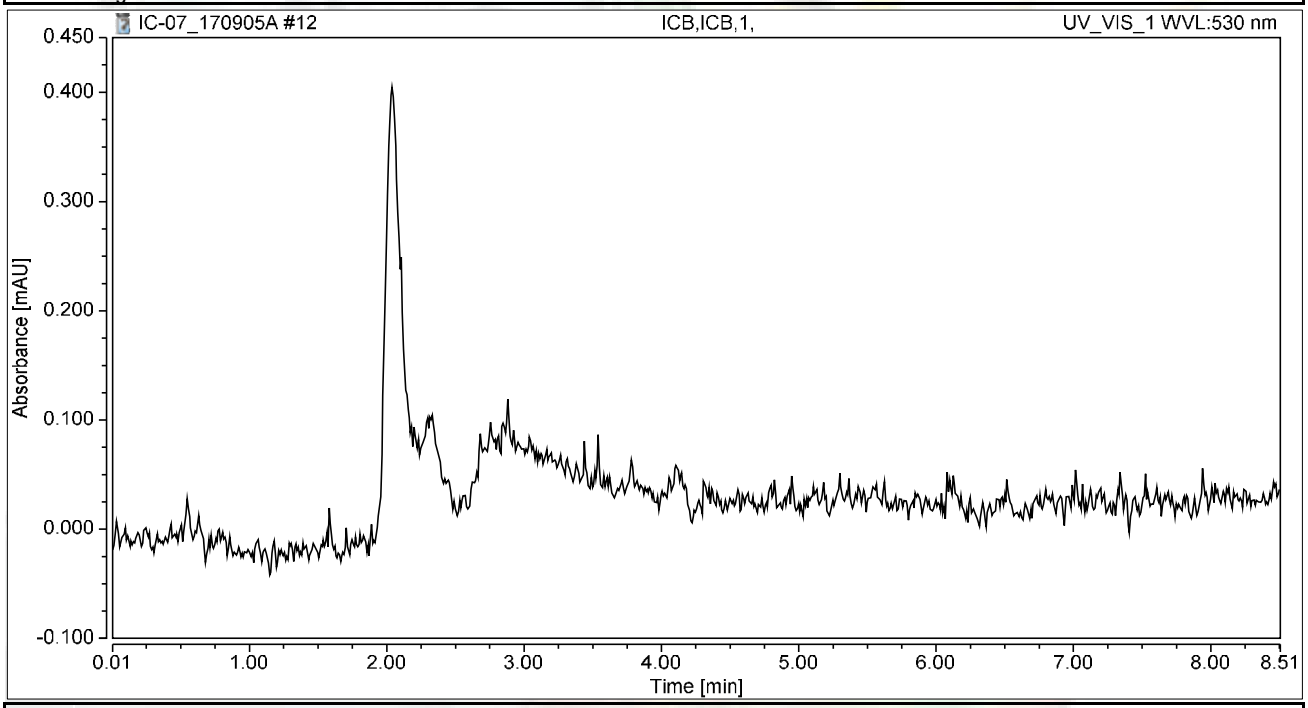
rba 9/7/2017

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170926B

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/26/17 8:45 PM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/26/17 8:55 PM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/26/17 9:05 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/26/17 9:14 PM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/26/17 9:24 PM	Reported
15	MB-R118137	MBLK	1	Hexavalent Chromium	09/26/17 9:33 PM	Reported
16	LCS-R118137	LCS	1	Hexavalent Chromium	09/26/17 9:43 PM	Reported
17	N026093-002A	SAMP	100	Hexavalent Chromium	09/26/17 9:52 PM	Reported
18	N026093-002AMS	MS	100	Hexavalent Chromium	09/26/17 10:02 PM	Reported
19	N026093-002AMSD	MSD	100	Hexavalent Chromium	09/26/17 10:11 PM	Reported
20	N026093-003A	SAMP	100	Hexavalent Chromium	09/26/17 10:20 PM	Reported
21	N026093-003ADUP	DUP	100	Hexavalent Chromium	09/26/17 10:30 PM	Reported
22	N026093-003AMS	MS	100	Hexavalent Chromium	09/26/17 10:39 PM	Reported
23	N026093-004A	SAMP	1	Hexavalent Chromium	09/26/17 10:49 PM	Reported
24	N026093-004AMS	MS	1	Hexavalent Chromium	09/26/17 10:58 PM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/26/17 11:08 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/26/17 11:19 PM	Reported
27	N026093-001A	SAMP	1	Hexavalent Chromium	09/26/17 11:29 PM	Not Reported
28	N026093-001AMS	MS	1	Hexavalent Chromium	09/26/17 11:38 PM	Not Reported
29	N026112-006C	SAMP	1	Hexavalent Chromium	09/26/17 11:59 PM	Reported
30	N026112-007D	SAMP	2000	Hexavalent Chromium	09/27/17 12:10 AM	Reported
31	N026113-010C	SAMP	1	Hexavalent Chromium	09/27/17 12:20 AM	Not Reported
32	N026112-010C	SAMP	200	Hexavalent Chromium	09/27/17 12:29 AM	Not Reported
33	N026112-008C	SAMP	500	Hexavalent Chromium	09/27/17 12:39 AM	Reported
34	N026112-009C	SAMP	500	Hexavalent Chromium	09/27/17 12:48 AM	Reported
35	N026113-008C	SAMP	1	Hexavalent Chromium	09/27/17 12:57 AM	Not Reported
36	N026113-009C	SAMP	1	Hexavalent Chromium	09/27/17 1:07 AM	Not Reported
37	CCV-3	CCV	1	Hexavalent Chromium	09/27/17 1:16 AM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	09/27/17 1:26 AM	Reported
39	N026113-010C	SAMP	100	Hexavalent Chromium	09/27/17 1:35 AM	Reported
40	N026112-010C	SAMP	500	Hexavalent Chromium	09/27/17 1:45 AM	Reported
41	N026113-001D	SAMP	1	Hexavalent Chromium	09/27/17 1:54 AM	Reported
42	N026113-002D	SAMP	1	Hexavalent Chromium	09/27/17 2:04 AM	Reported

INJECTION LOG: 170926B

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026113-004D	SAMP	1	Hexavalent Chromium	09/27/17 2:13 AM	Reported
44	N026113-006D	SAMP	1	Hexavalent Chromium	09/27/17 2:23 AM	Reported
45	N026113-008C	SAMP	100	Hexavalent Chromium	09/27/17 2:32 AM	Reported
46	N026113-009CMS	MS	1	Hexavalent Chromium	09/27/17 2:42 AM	Not Reported
47	N026111-001D	SAMP	1	Hexavalent Chromium	09/27/17 2:51 AM	Reported
48	N026111-004B	SAMP	1	Hexavalent Chromium	09/27/17 3:00 AM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	09/27/17 3:10 AM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	09/27/17 3:19 AM	Reported
51	N026112-006CREP	DUP	1	Hexavalent Chromium	09/27/17 3:29 AM	Reported
52	N026112-007DREP	DUP	2000	Hexavalent Chromium	09/27/17 3:38 AM	Reported
53	N026113-010CREP	DUP	100	Hexavalent Chromium	09/27/17 3:48 AM	Reported
54	N026112-010CREP	DUP	500	Hexavalent Chromium	09/27/17 3:57 AM	Reported
55	N026112-008CREP	DUP	500	Hexavalent Chromium	09/27/17 4:07 AM	Reported
56	N026112-009CREP	DUP	500	Hexavalent Chromium	09/27/17 4:16 AM	Reported
57	N026113-008CREP	DUP	100	Hexavalent Chromium	09/27/17 4:26 AM	Reported
58	N026111-001DMS	MS	1	Hexavalent Chromium	09/27/17 4:35 AM	Reported
59	N026113-009CREP	DUP	1	Hexavalent Chromium	09/27/17 4:45 AM	Not Reported
60	N026113-001DREP	DUP	1	Hexavalent Chromium	09/27/17 4:54 AM	Not Reported
61	CCV-5	CCV	1	Hexavalent Chromium	09/27/17 5:03 AM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	09/27/17 5:13 AM	Reported
63	N026113-002DREP	DUP	1	Hexavalent Chromium	09/27/17 5:22 AM	Reported
64	N026113-004DREP	DUP	1	Hexavalent Chromium	09/27/17 5:32 AM	Reported
65	N026113-006DREP	DUP	1	Hexavalent Chromium	09/27/17 5:41 AM	Reported
66	N026111-004BREP	DUP	1	Hexavalent Chromium	09/27/17 5:51 AM	Reported
67	N026113-009C	SAMP	5	Hexavalent Chromium	09/27/17 6:00 AM	Reported
68	N026113-009CMS	MS	5	Hexavalent Chromium	09/27/17 6:10 AM	Reported
69	N026093-001A	SAMP	5	Hexavalent Chromium	09/27/17 6:19 AM	Reported
70	N026093-001AMS	MS	5	Hexavalent Chromium	09/27/17 6:29 AM	Reported
71	N026111-001DREP	DUP	1	Hexavalent Chromium	09/27/17 6:38 AM	Reported
72	N026113-009CREP	DUP	5	Hexavalent Chromium	09/27/17 6:48 AM	Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	09/27/17 6:57 AM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	09/27/17 7:06 AM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_170926B**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**27/Sep/17 07:37:16**
No. of Injections:	**77**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/26/2017 20:45	Finished	BLANK
11	BLANK	2	1000	Unknown		09/26/2017 20:55	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/26/2017 21:05	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/26/2017 21:14	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/26/2017 21:24	Finished	CCB R170912A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/26/2017 21:33	Finished	MB R170912A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/26/2017 21:43	Finished	LCS, IWST-170622D
17	N026093-002A,SAMF	8	1000	Unknown		09/26/2017 21:52	Finished	SAMP,0.1>10mL
18	N026093-002AMS,MS	9	1000	Unknown		09/26/2017 22:02	Finished	MS (5ppb), IWST-170622D,0.1
19	N026093-002AMSD,M	10	1000	Unknown		09/26/2017 22:11	Finished	MSD (5ppb), IWST-170622D,0.
20	N026093-003A,SAMF	11	1000	Unknown		09/26/2017 22:20	Finished	SAMP,0.1>10mL
21	N026093-003ADUP,D	12	1000	Unknown		09/26/2017 22:30	Finished	DUP,0.1>10mL
22	N026093-003AMS,MS	13	1000	Unknown		09/26/2017 22:39	Finished	MS (5ppb), IWST-170622D,0.1
23	N026093-004A,SAMF	14	1000	Unknown		09/26/2017 22:49	Finished	SAMP,10mL
24	N026093-004AMS,MS	15	1000	Unknown		09/26/2017 22:58	Finished	MS (1ppb), IWST-170622D,10
25	CCV-2,CCV1,1,	16	1000	Unknown		09/26/2017 23:08	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		09/26/2017 23:19	Finished	CCB R170921A
27	N026093-001A,SAMF	18	1000	Unknown		09/26/2017 23:29	Finished	SAMP,1>10mL
28	N026093-001AMS,MS	19	1000	Unknown		09/26/2017 23:38	Finished	MS (1ppb), IWST-170622D,1>1
29	N026112-006C,SAMF	1	1000	Unknown		09/26/2017 23:59	Finished	SAMP,10mL
30	N026112-007D,SAMF	2	1000	Unknown		09/27/2017 00:10	Finished	SAMP,0.005>10mL
31	N026113-010C,SAMF	3	1000	Unknown		09/27/2017 00:20	Finished	SAMP,10mL
32	N026112-010C,SAMF	4	1000	Unknown		09/27/2017 00:29	Finished	SAMP,0.05>10mL
33	N026112-008C,SAMF	5	1000	Unknown		09/27/2017 00:39	Finished	SAMP,0.02>10mL
34	N026112-009C,SAMF	6	1000	Unknown		09/27/2017 00:48	Finished	SAMP,0.02>10mL
35	N026113-008C,SAMF	7	1000	Unknown		09/27/2017 00:57	Finished	SAMP,10mL
36	N026113-009C,SAMF	8	1000	Unknown		09/27/2017 01:07	Finished	SAMP,10mL
37	CCV-3,CCV,1,	9	1000	Unknown		09/27/2017 01:16	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	10	1000	Unknown		09/27/2017 01:26	Finished	CCB R170921A
39	N026113-010C,SAMF	11	1000	Unknown		09/27/2017 01:35	Finished	SAMP,0.1>10mL
40	N026112-010C,SAMF	12	1000	Unknown		09/27/2017 01:45	Finished	SAMP,0.02>10mL
41	N026113-001D,SAMF	13	1000	Unknown		09/27/2017 01:54	Finished	SAMP,10mL
42	N026113-002D,SAMF	14	1000	Unknown		09/27/2017 02:04	Finished	SAMP,10mL
43	N026113-004D,SAMF	15	1000	Unknown		09/27/2017 02:13	Finished	SAMP,10mL
44	N026113-006D,SAMF	16	1000	Unknown		09/27/2017 02:23	Finished	SAMP,10mL
45	N026113-008C,SAMF	17	1000	Unknown		09/27/2017 02:32	Finished	SAMP,0.1>10mL
46	N026113-009CMS,MS	18	1000	Unknown		09/27/2017 02:42	Finished	MS (1ppb), IWST-170622D,10
47	N026111-001D,SAMF	19	1000	Unknown		09/27/2017 02:51	Finished	SAMP,10mL
48	N026111-004B,SAMF	20	1000	Unknown		09/27/2017 03:00	Finished	SAMP,10mL
49	CCV-4,CCV1,1,	21	1000	Unknown		09/27/2017 03:10	Finished	CCV @10ppb, IWST-170622C
50	CCB-4,CCB,1,	22	1000	Unknown		09/27/2017 03:19	Finished	CCB R170921A
51	N026112-006CREP,D	23	1000	Unknown		09/27/2017 03:29	Finished	REP,10mL
52	N026112-007DREP,D	24	1000	Unknown		09/27/2017 03:38	Finished	REP,0.005>10mL
53	N026113-010CREP,D	25	1000	Unknown		09/27/2017 03:48	Finished	REP,0.1>10mL
54	N026112-010CREP,D	26	1000	Unknown		09/27/2017 03:57	Finished	REP,0.02>10mL
55	N026112-008CREP,D	27	1000	Unknown		09/27/2017 04:07	Finished	REP,0.02>10mL
56	N026112-009CREP,D	28	1000	Unknown		09/27/2017 04:16	Finished	REP,0.02>10mL
57	N026113-008CREP,D	29	1000	Unknown		09/27/2017 04:26	Finished	REP,0.1>10mL
58	N026111-001DMS,MS	30	1000	Unknown		09/27/2017 04:35	Finished	MS (1ppb), IWST-170622D,10
59	N026113-009CREP,D	31	1000	Unknown		09/27/2017 04:45	Finished	REP,10mL
60	N026113-001DREP,D	32	1000	Unknown		09/27/2017 04:54	Finished	REP,10mL

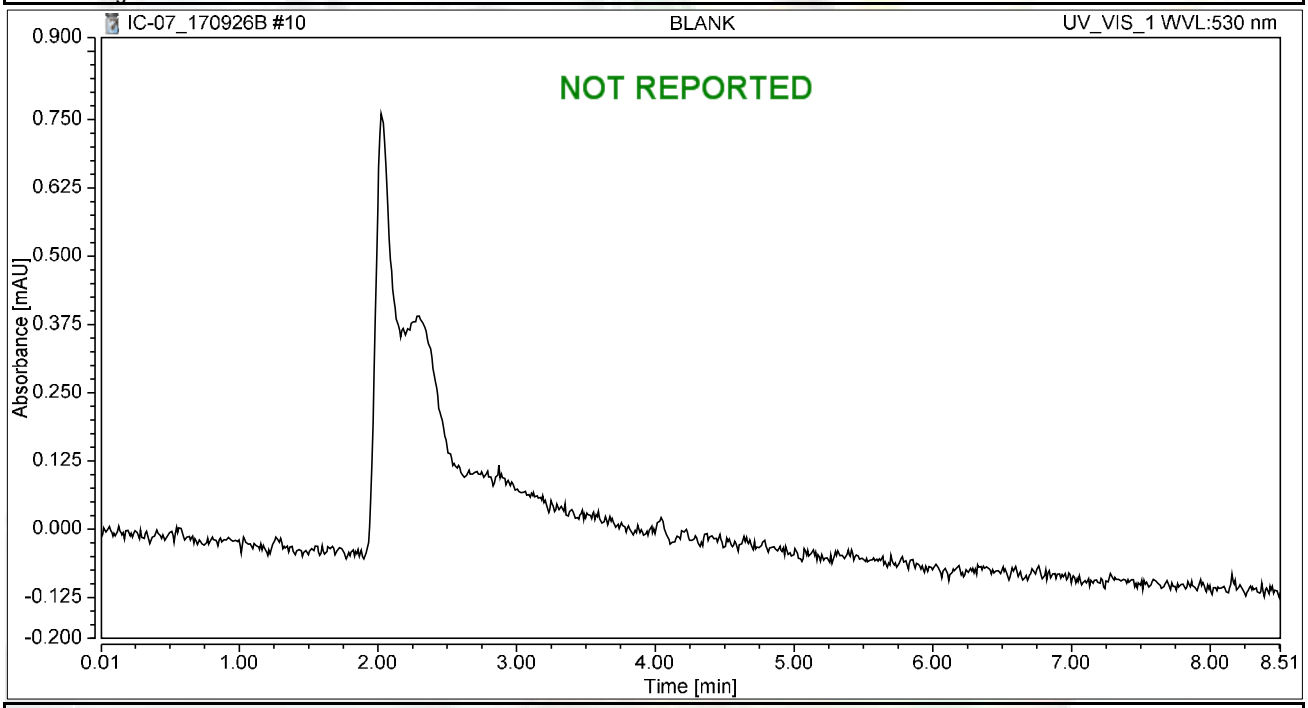
61	CCV-5,CCV,1,	33	1000	Unknown		09/27/2017 05:03	Finished	CCV @5ppb, IWST-170622C
62	CCB-5,CCB,1,	34	1000	Unknown		09/27/2017 05:13	Finished	CCB R170921A
63	N026113-002DREP,D	35	1000	Unknown		09/27/2017 05:22	Finished	REP,10mL
64	N026113-004DREP,D	36	1000	Unknown		09/27/2017 05:32	Finished	REP,10mL
65	N026113-006DREP,D	37	1000	Unknown		09/27/2017 05:41	Finished	REP,10mL
66	N026111-004BREP,D	38	1000	Unknown		09/27/2017 05:51	Finished	REP,10mL
67	N026113-009C,SAMP	39	1000	Unknown		09/27/2017 06:00	Finished	SAMP,2>10mL
68	N026113-009CMS,MS	40	1000	Unknown		09/27/2017 06:10	Finished	MS (1ppb), IWST-170622D,2>1
69	N026093-001A,SAMP	41	1000	Unknown		09/27/2017 06:19	Finished	SAMP,2>10mL
70	N026093-001AMS,MS	42	1000	Unknown		09/27/2017 06:29	Finished	MS (1ppb), IWST-170622D,2>1
71	N026111-001DREP,D	43	1000	Unknown		09/27/2017 06:38	Finished	REP,10mL
72	N026113-009CREP,D	44	1000	Unknown		09/27/2017 06:48	Finished	REP,2>10mL
73	CCV-6,CCV1,1,	45	1000	Unknown		09/27/2017 06:57	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	46	1000	Unknown		09/27/2017 07:06	Finished	CCB R170921A
75	SHUTDOWN	47	1000	Unknown		09/27/2017 07:16	Finished	
76	Eluent: R170920A	48	1000	Unknown		n.a.	Finished	Eluent
77	PCR: R170925A	49	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 20:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

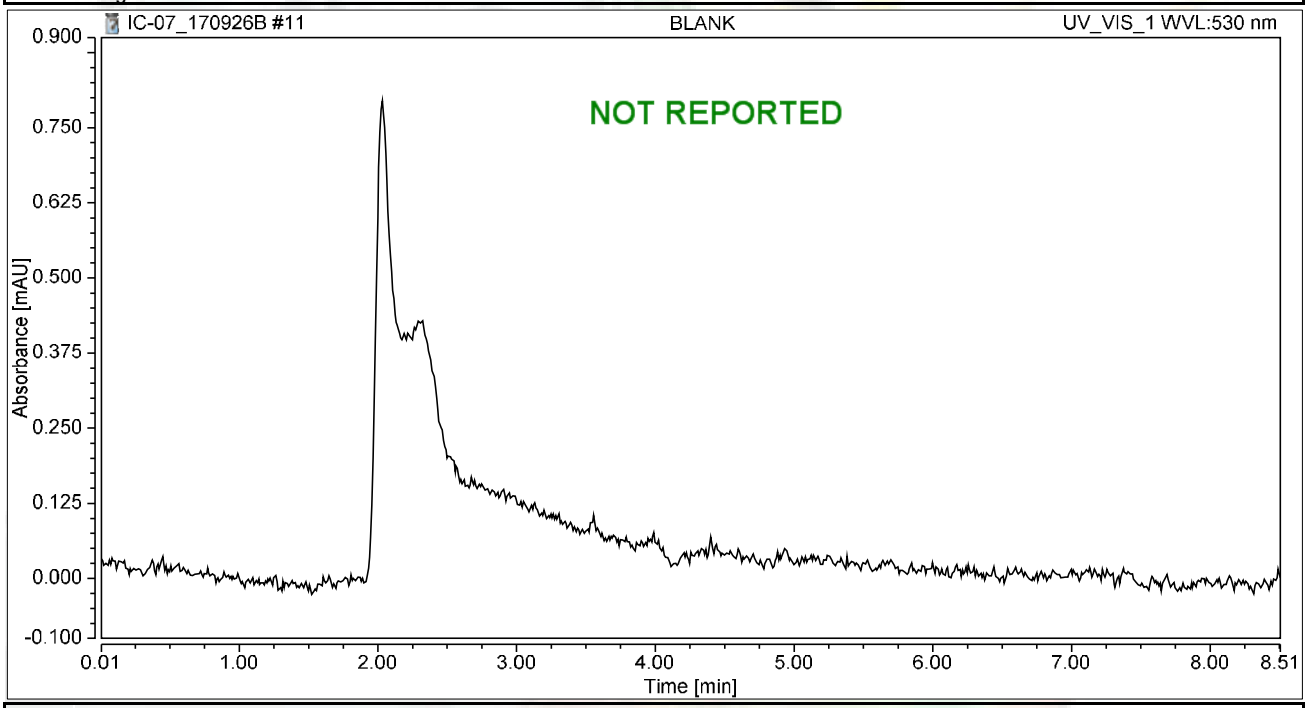
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 20:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

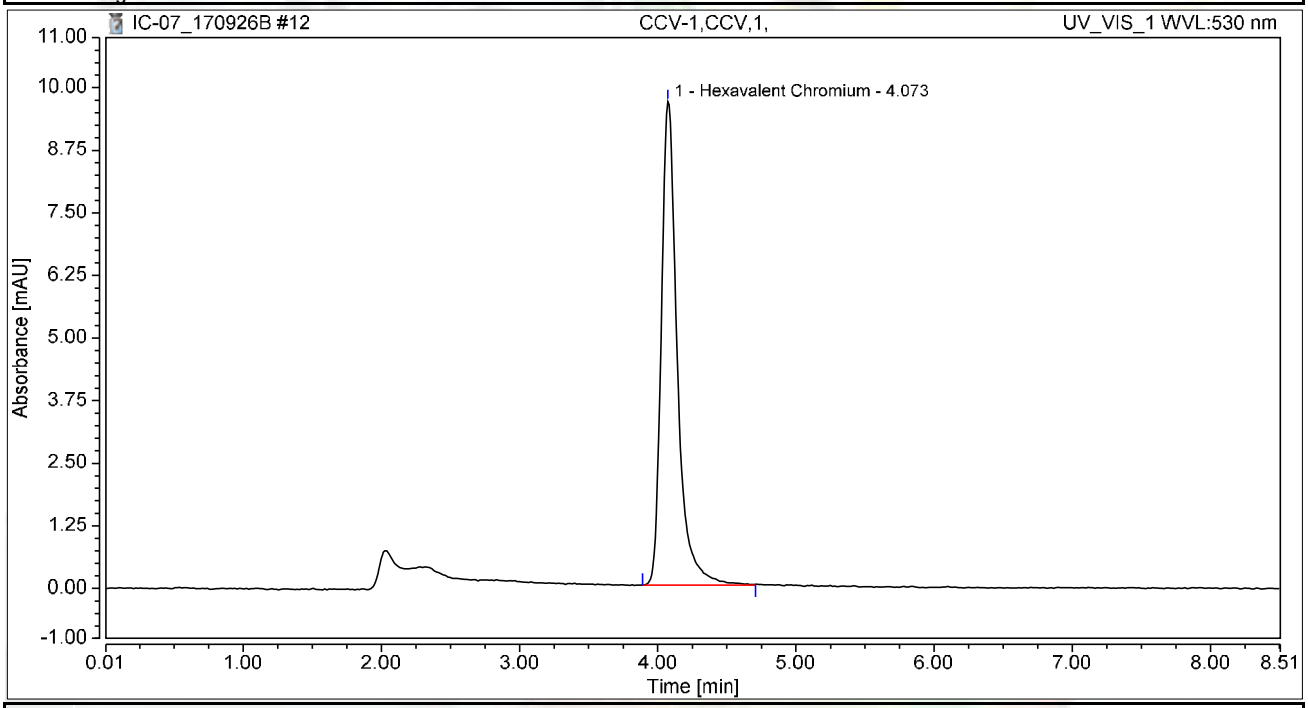
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 21:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

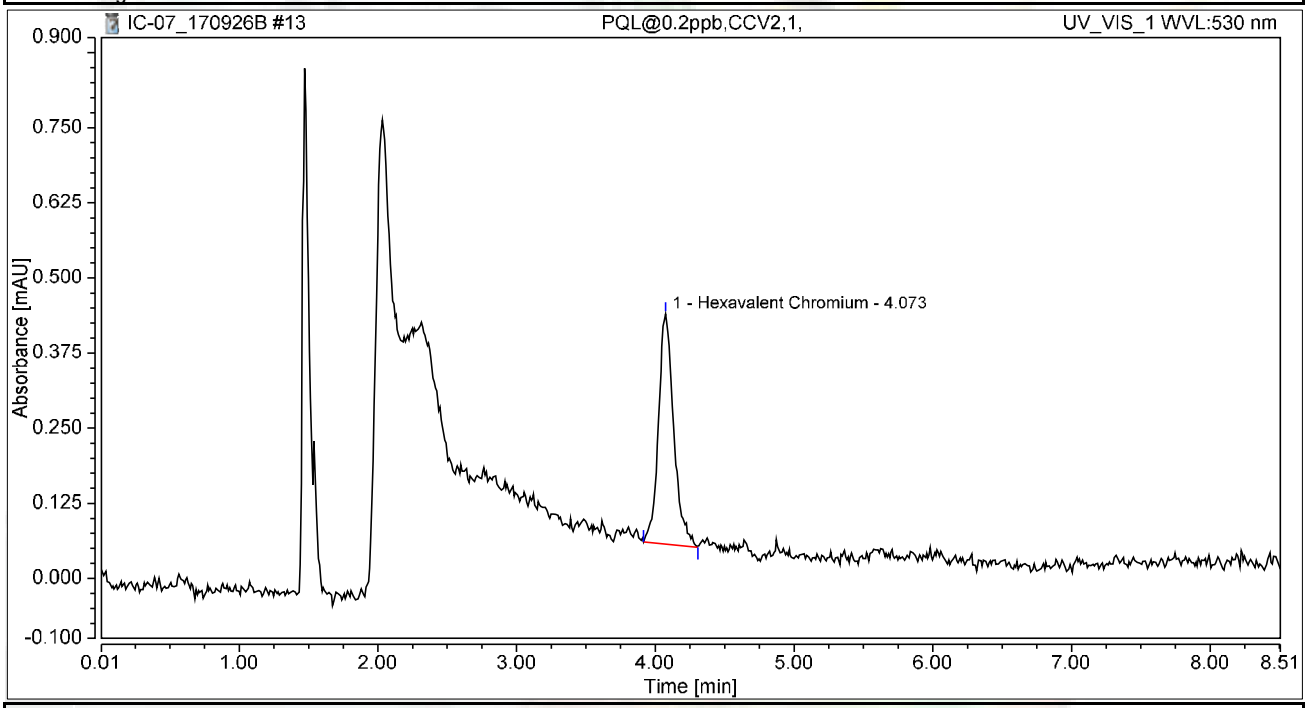
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	1.293	9.651	100.00	100.00	4.9822
Total:			**1.293**	**9.651**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 21:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

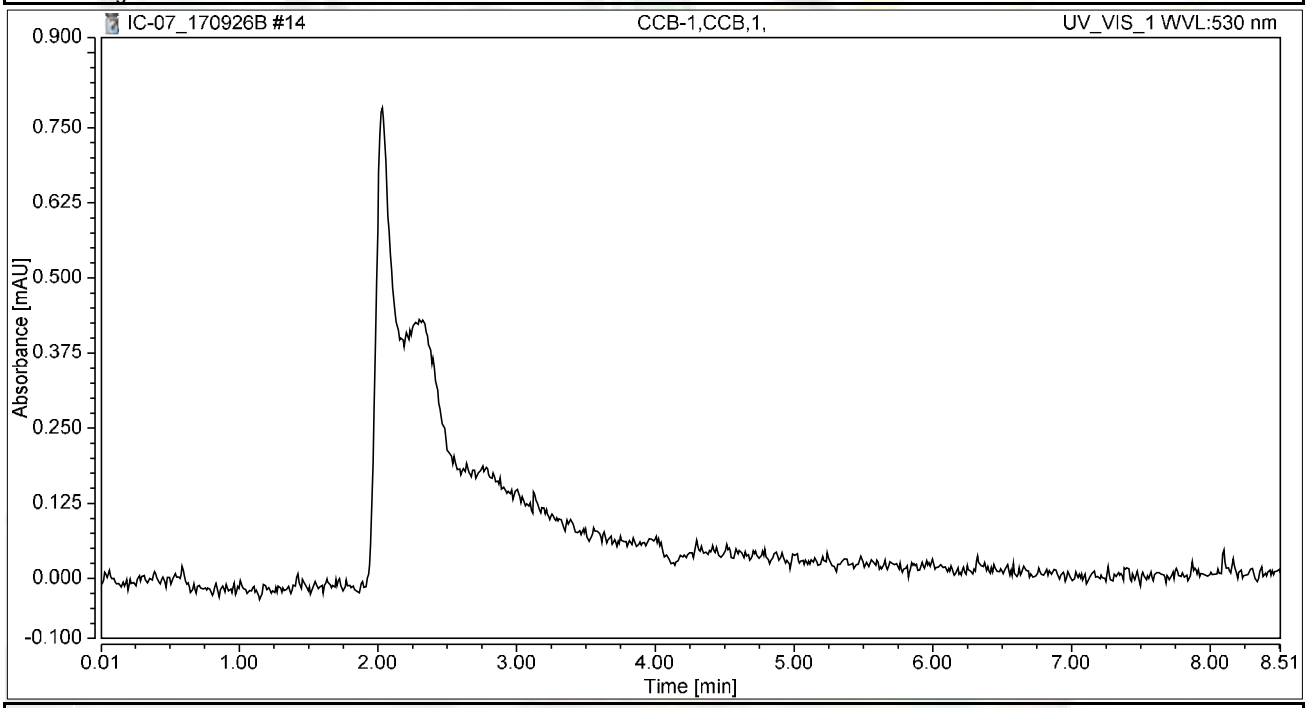
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.049	0.383	100.00	100.00	0.1883
Total:			**0.049**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 21:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

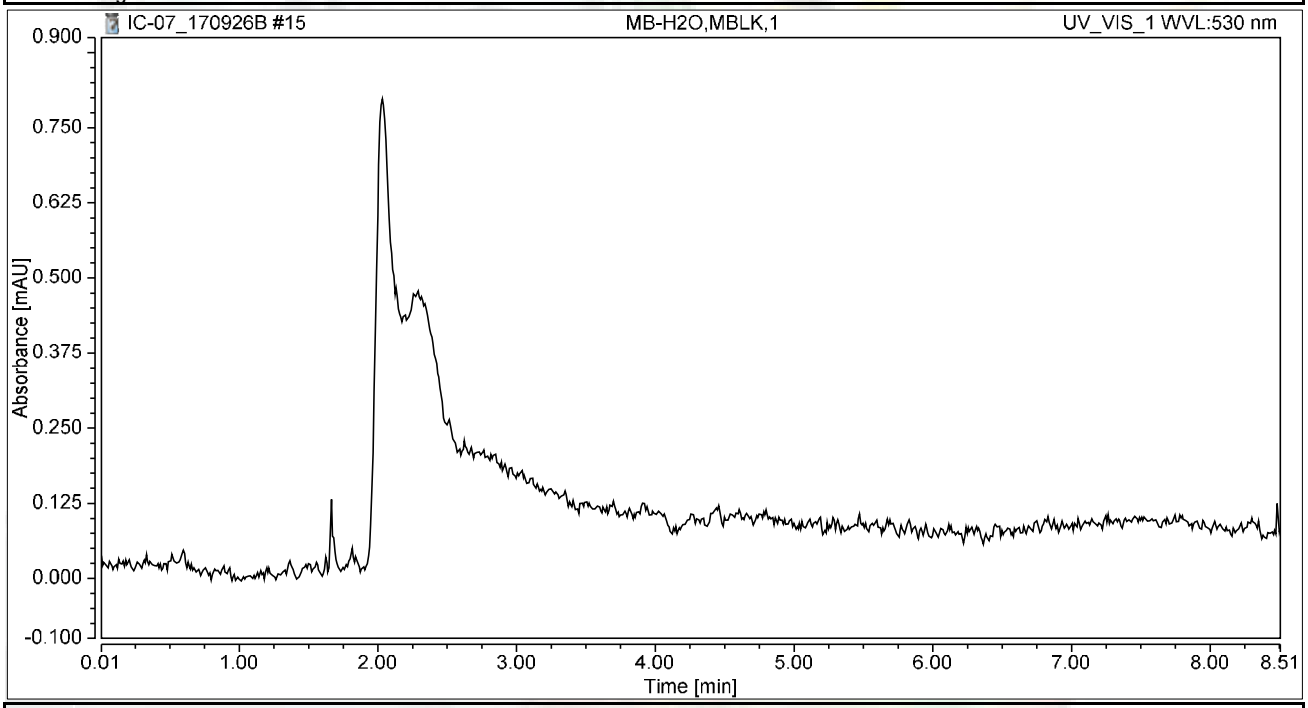
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 21:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

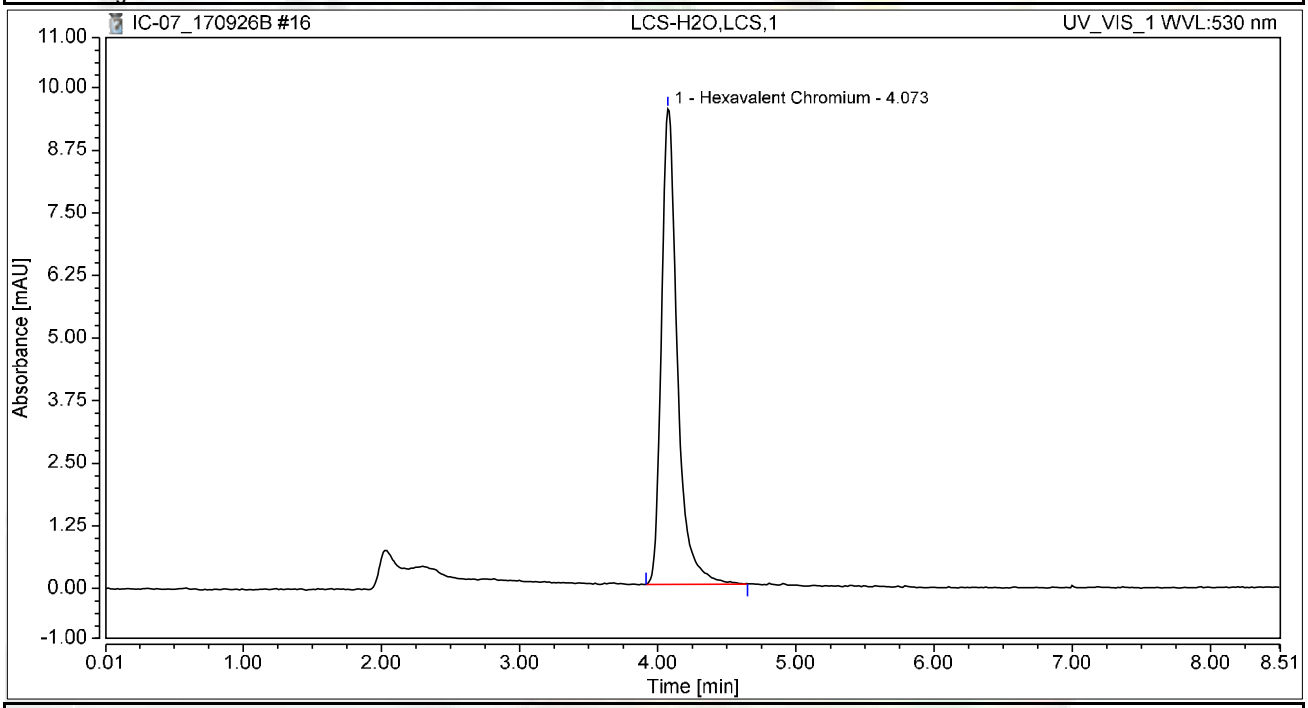
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 21:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

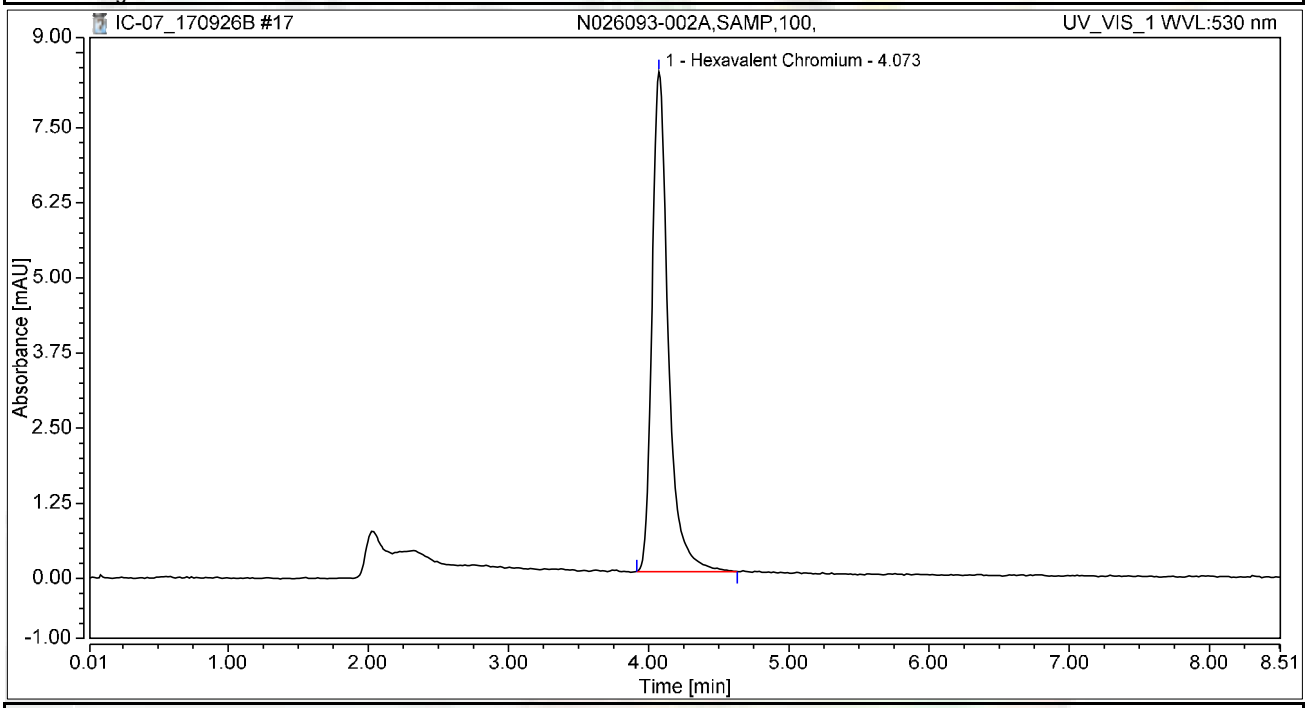
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	1.272	9.497	100.00	100.00	4.9018
Total:			**1.272**	**9.497**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-002A,SAMP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 21:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

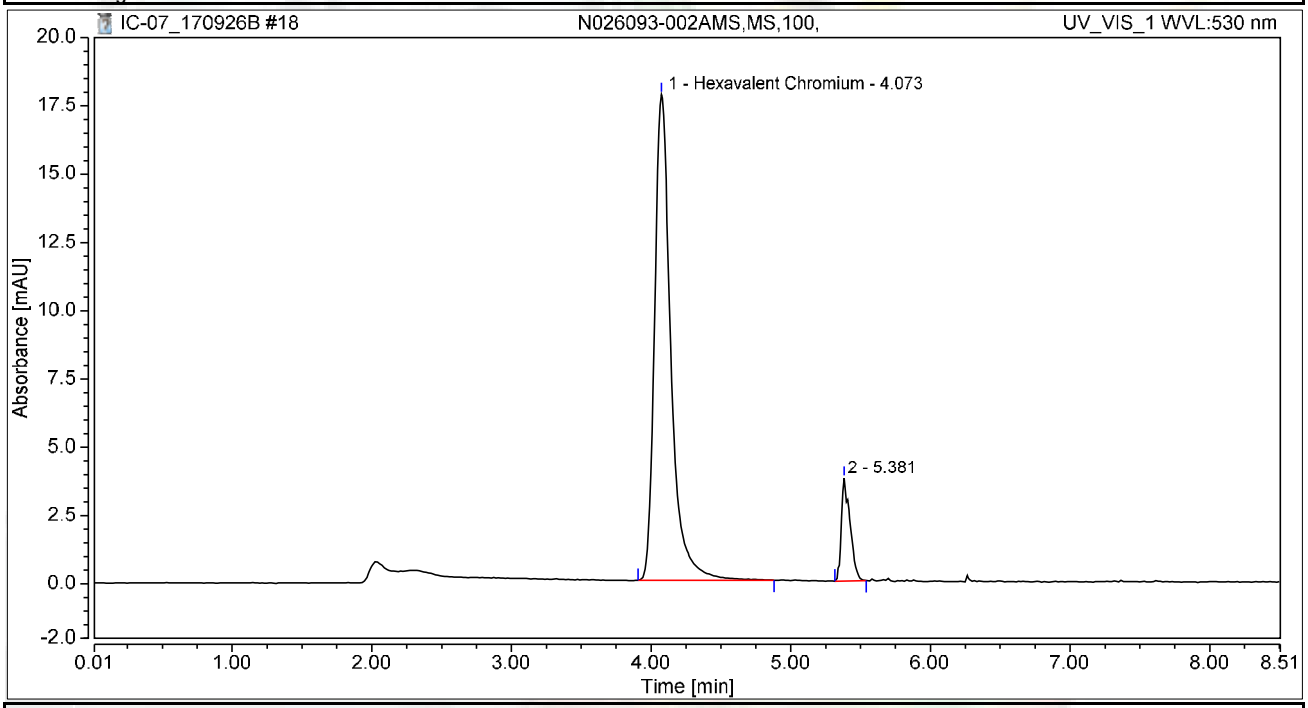
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	1.114	8.320	100.00	100.00	4.2939
Total:			**1.114**	**8.320**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-002AMS,MS,100,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

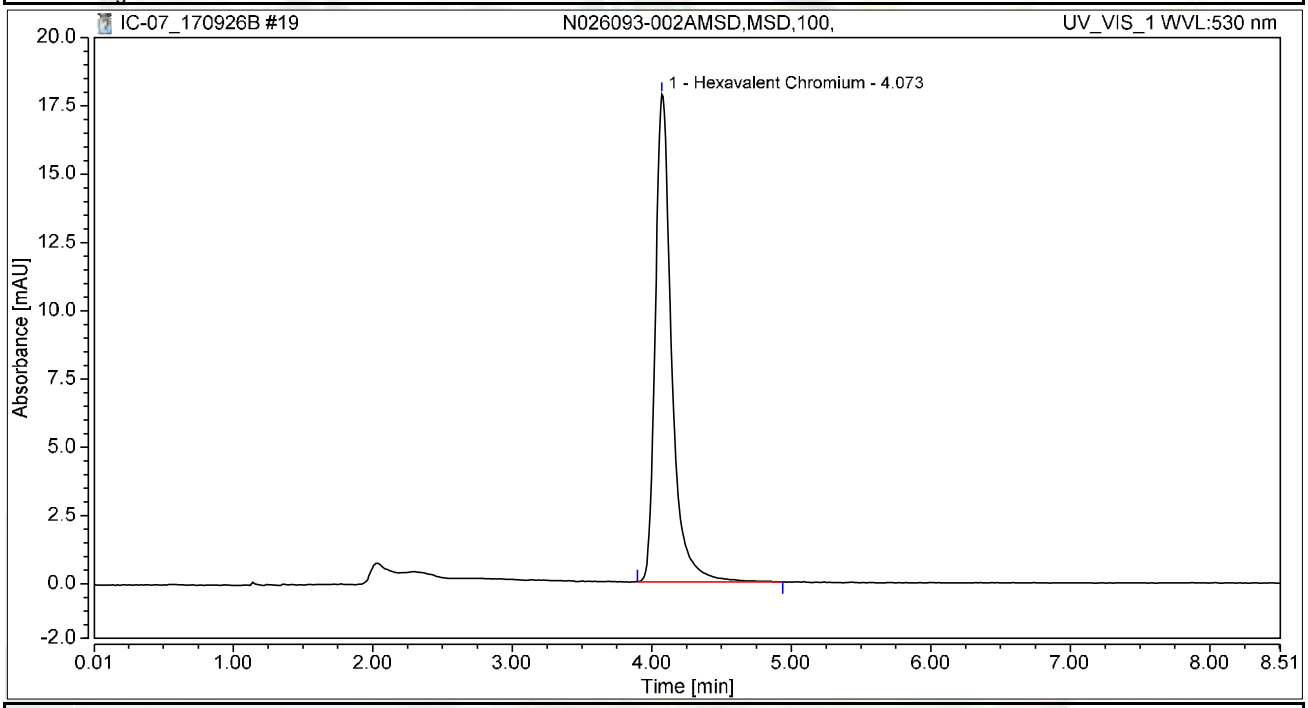
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.408	17.792	89.88	82.57	9.2764
2		5.381	0.271	3.757	10.12	17.43	n.a.
Total:			**2.679**	**21.549**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-002AMSD,MSD,100,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

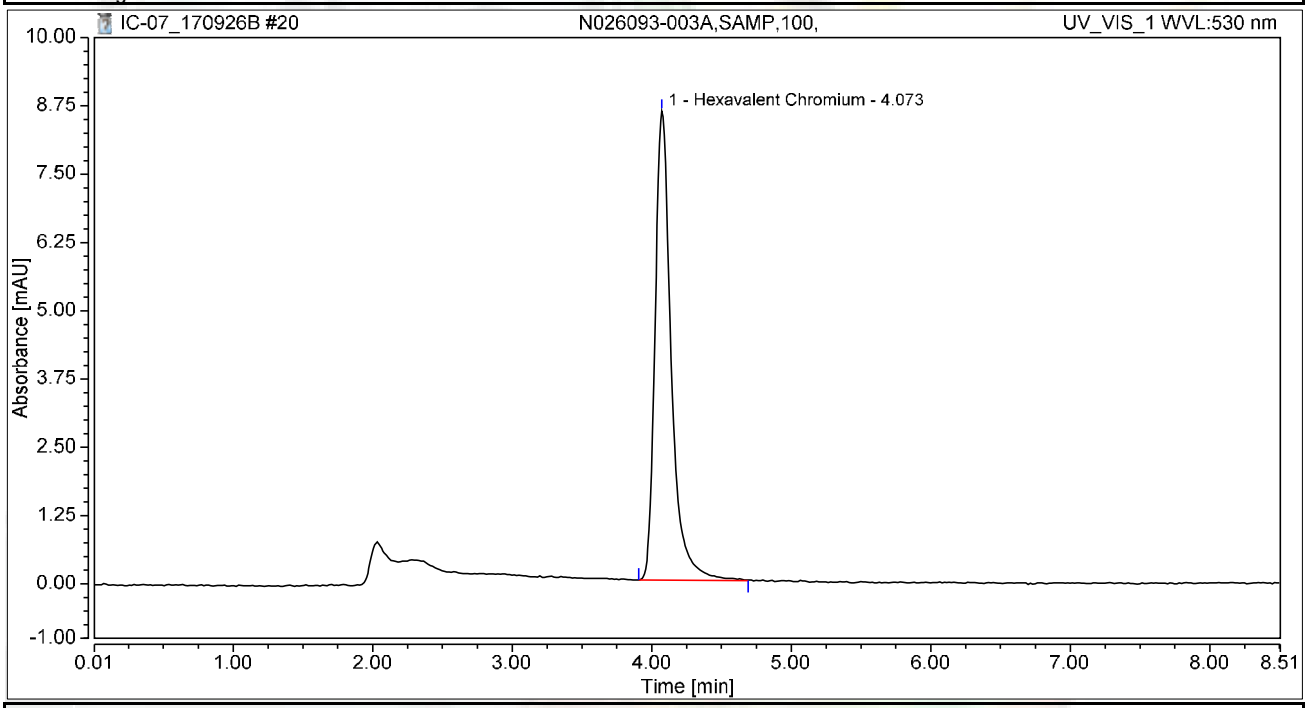
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.424	17.856	100.00	100.00	9.3413
Total:			**2.424**	**17.856**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-003A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

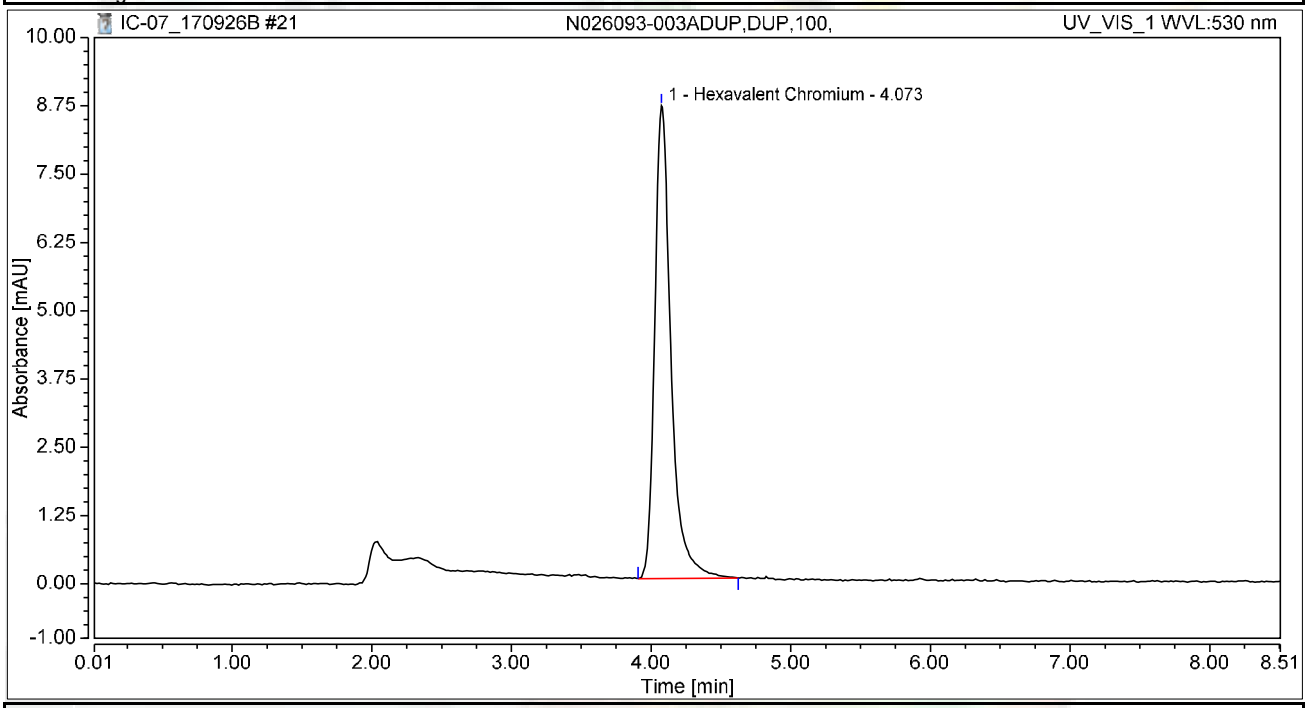
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	1.156	8.588	100.00	100.00	4.4555
Total:			**1.156**	**8.588**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-003ADUP,DUP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

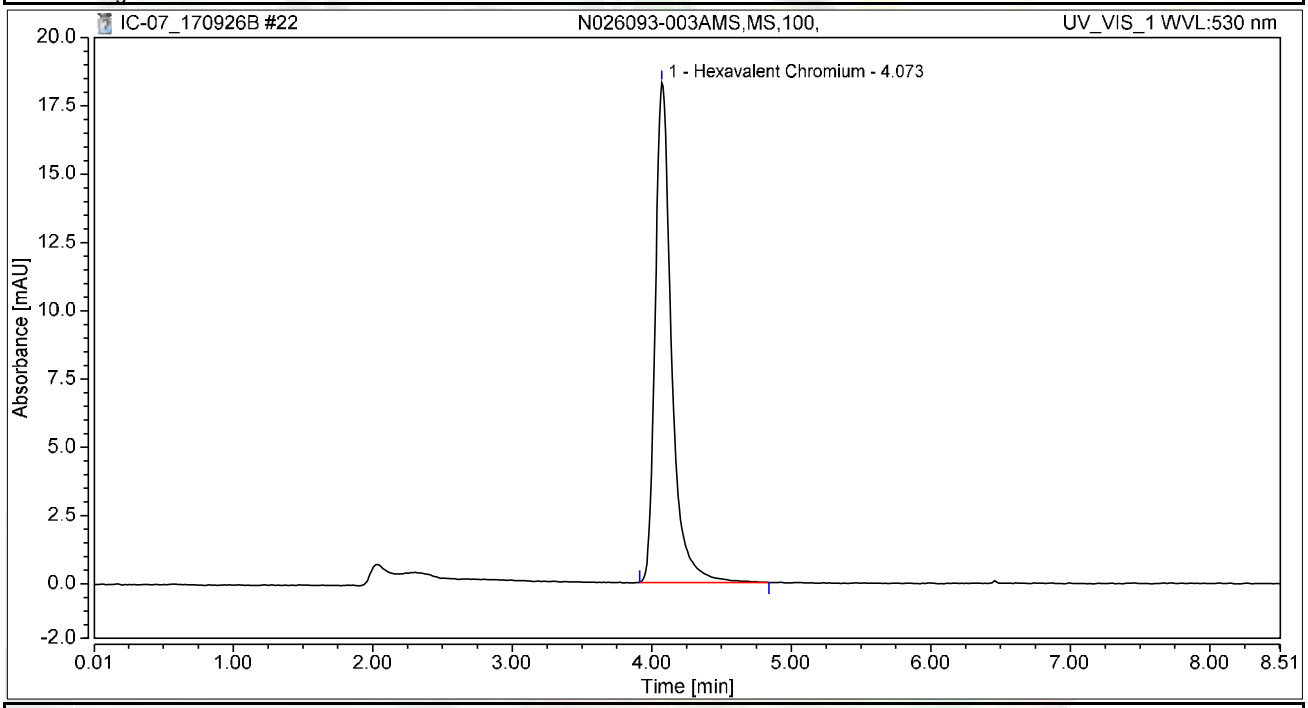
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	1.169	8.654	100.00	100.00	4.5037
Total:			**1.169**	**8.654**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-003AMS,MS,100,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

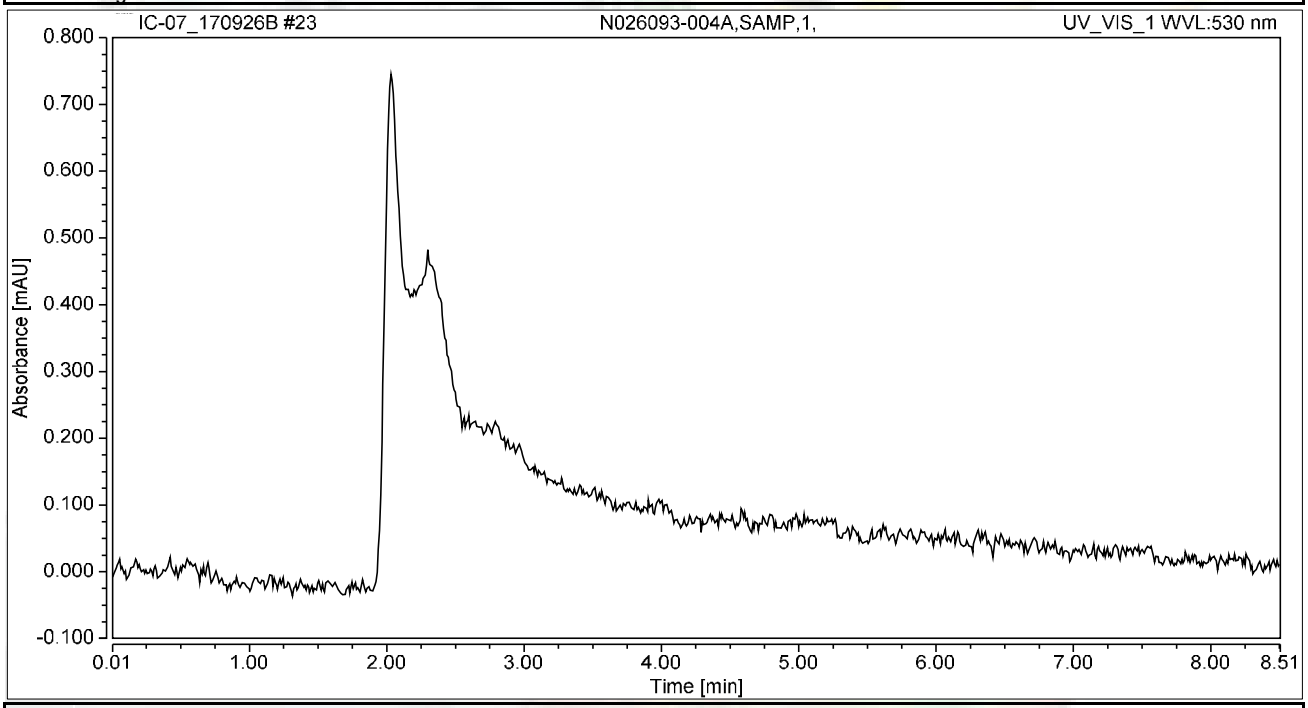
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.480	18.306	100.00	100.00	9.5566
Total:			**2.480**	**18.306**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

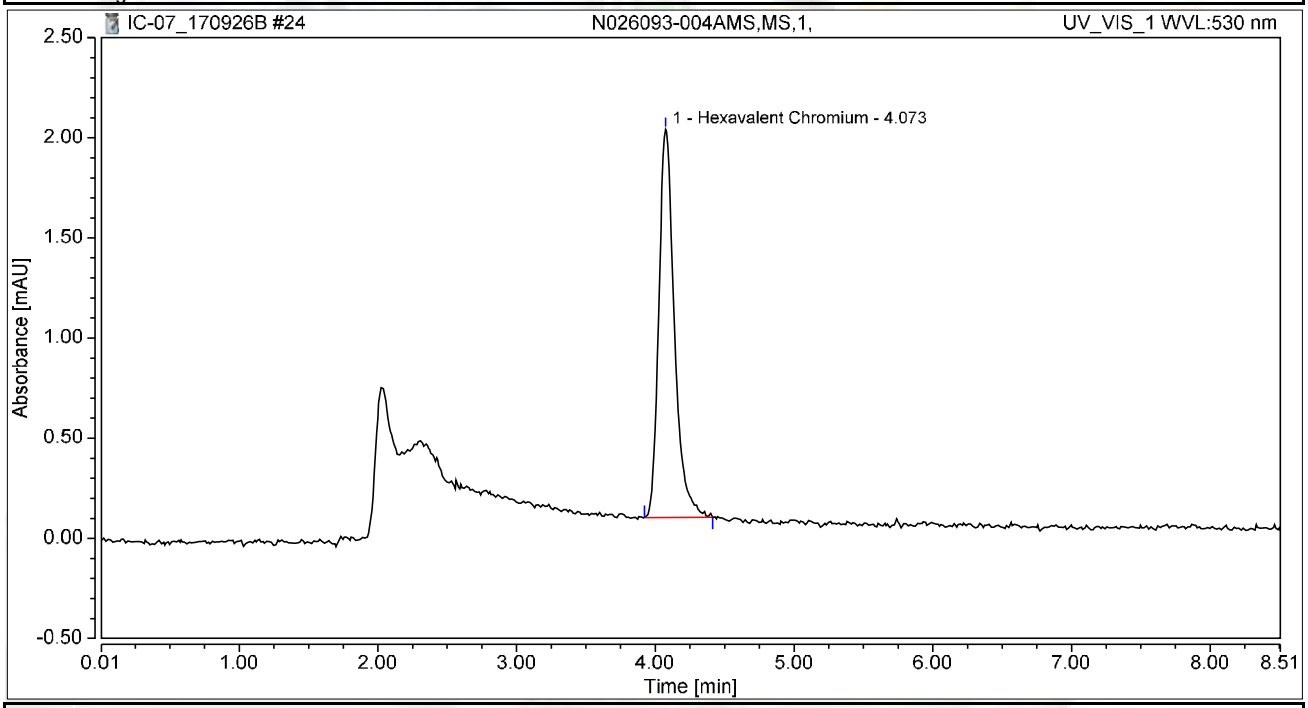
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 22:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

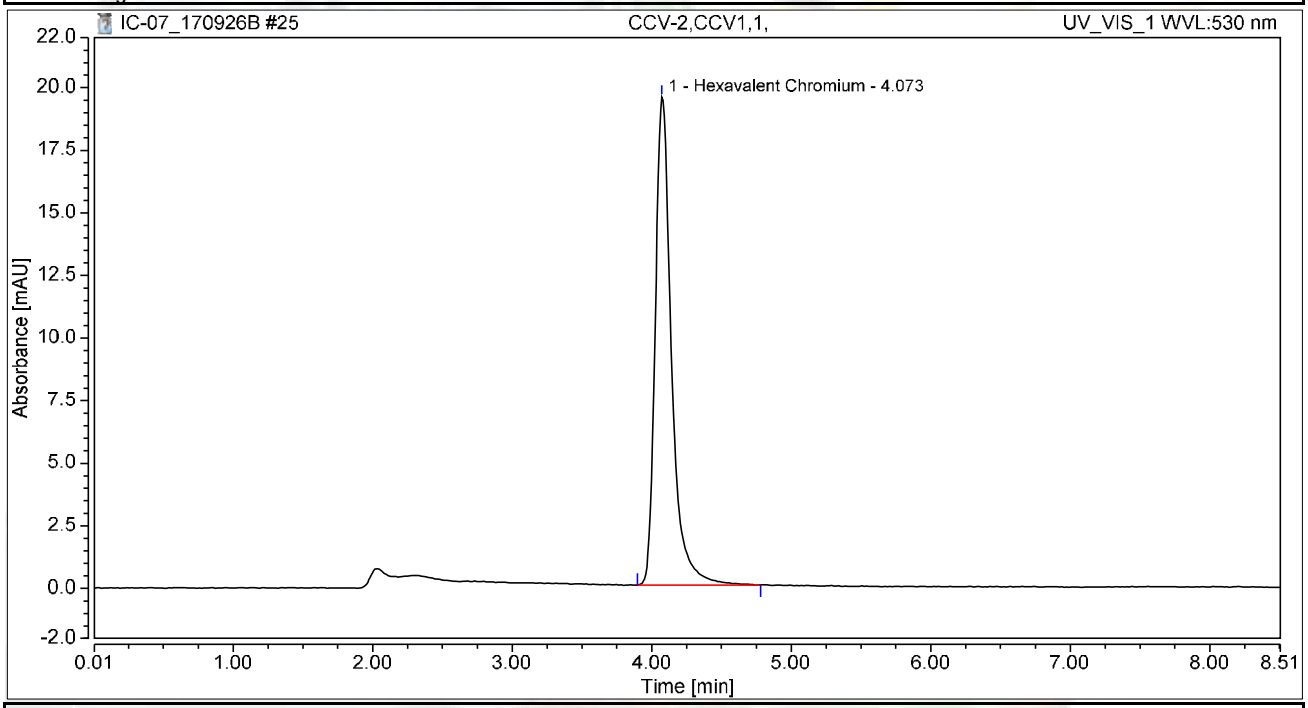
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.252	1.937	100.00	100.00	0.9712
Total:			**0.252**	**1.937**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 23:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

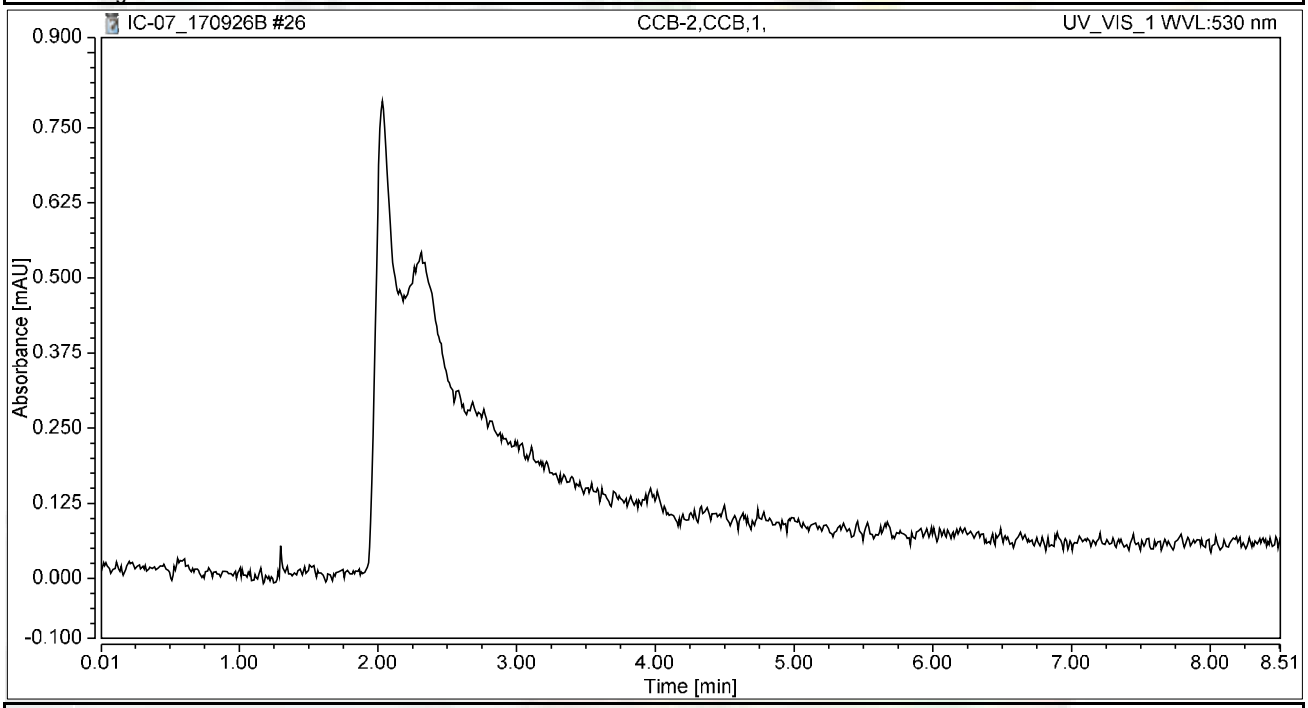
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.628	19.480	100.00	100.00	10.1263
Total:			**2.628**	**19.480**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 23:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

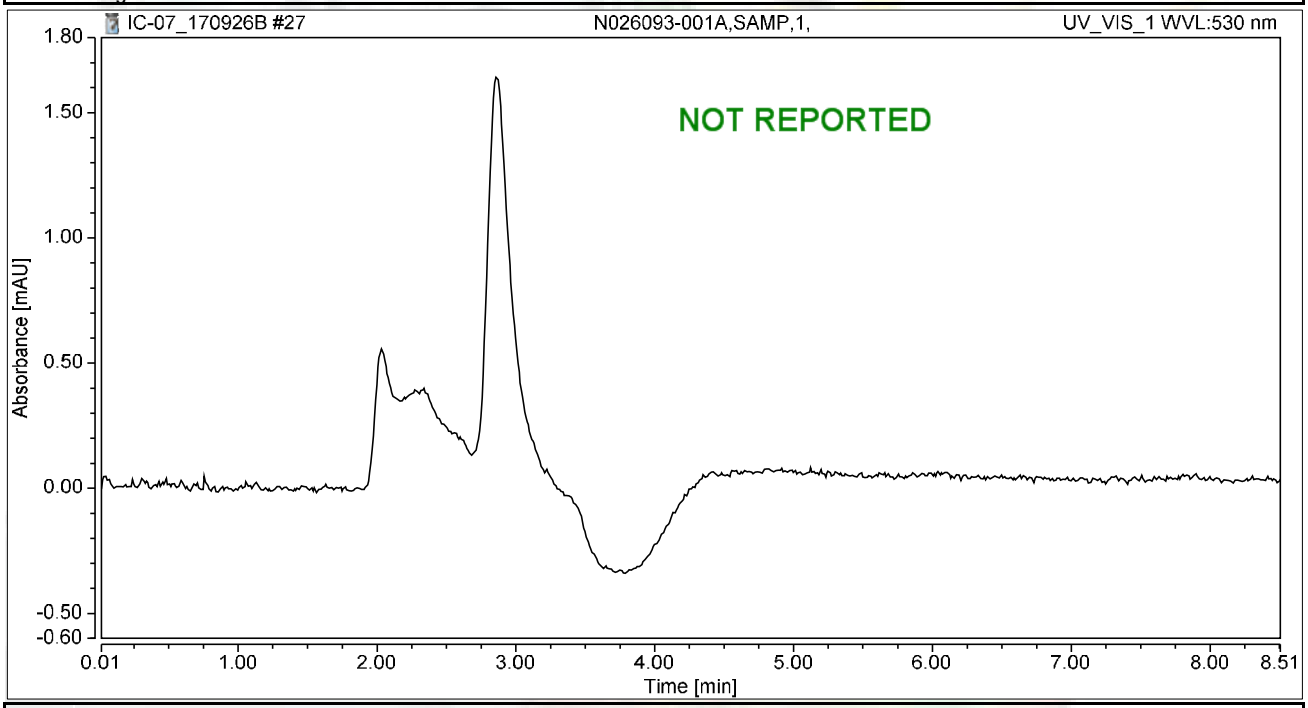
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 23:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

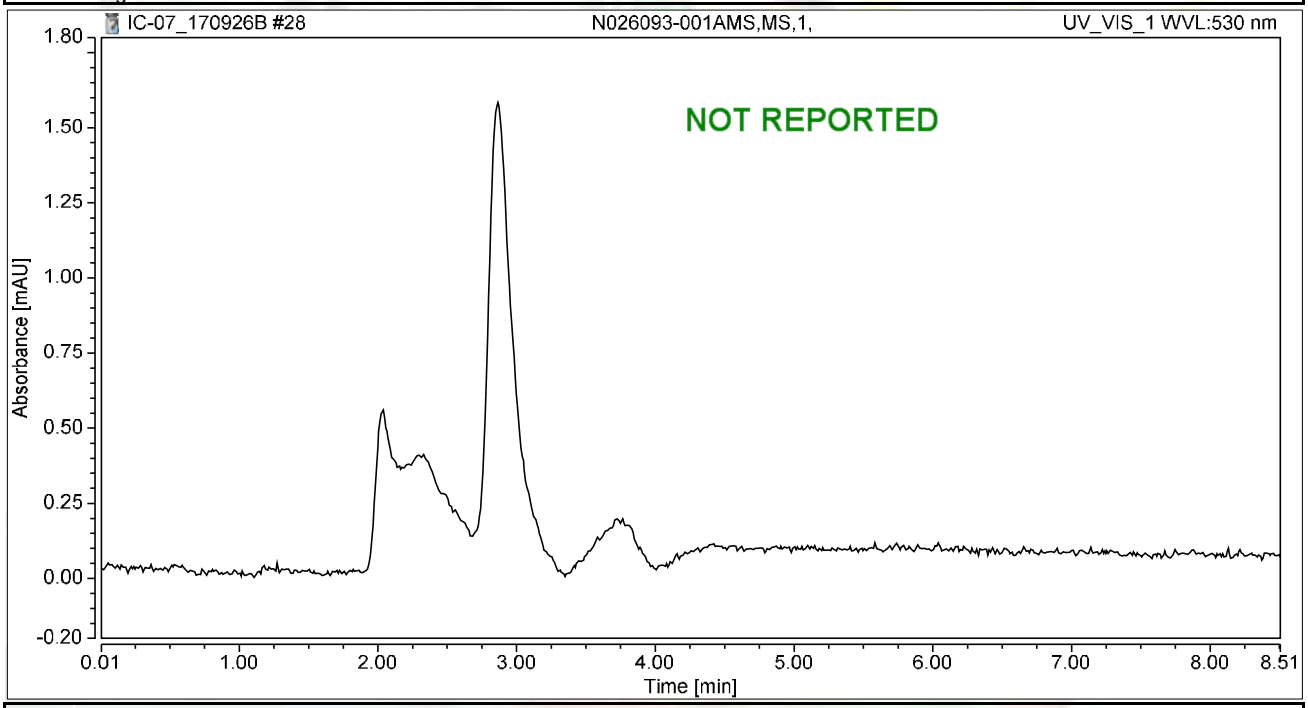
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 23:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

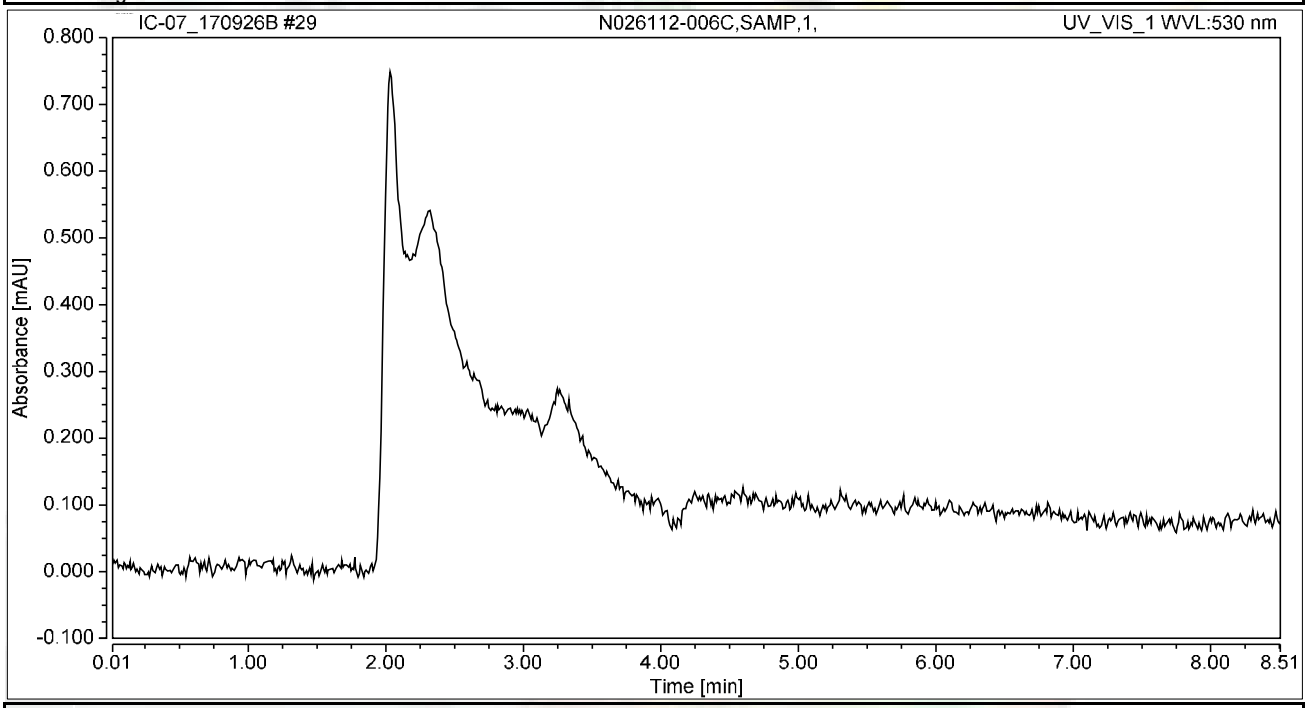
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-006C,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Sep/17 23:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

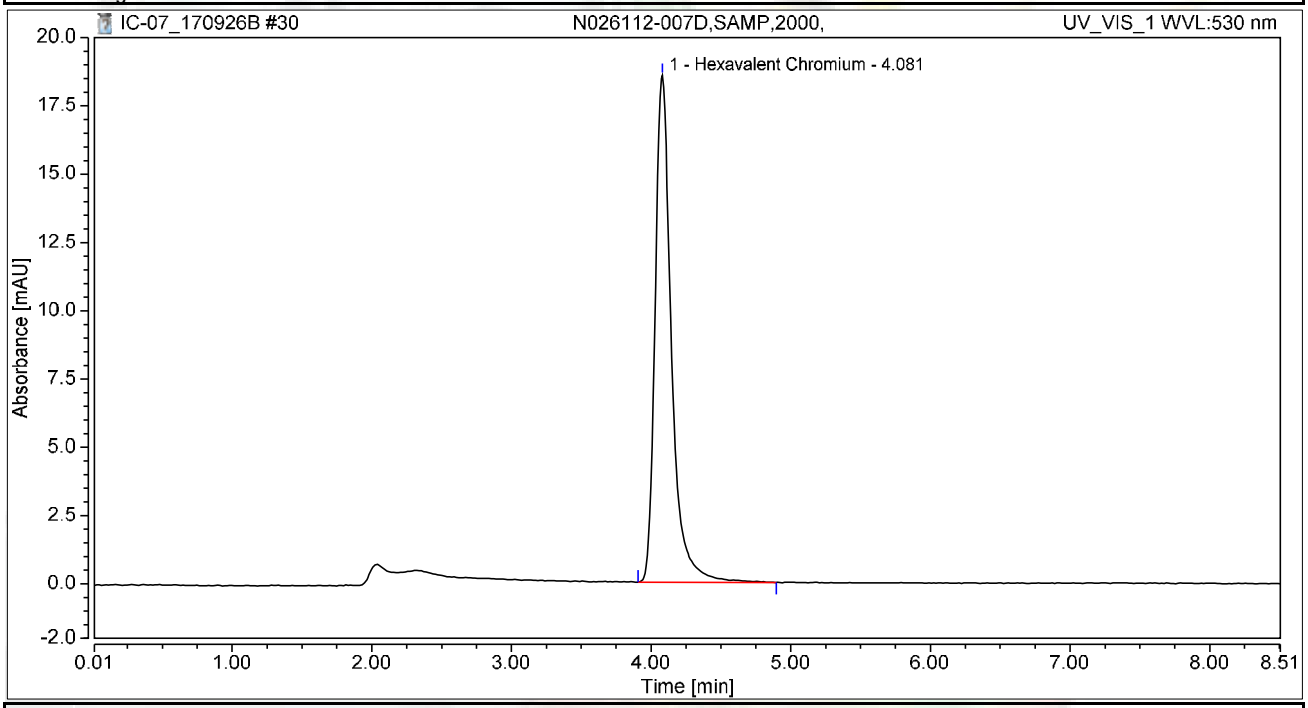
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-007D,SAMP,2000,**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

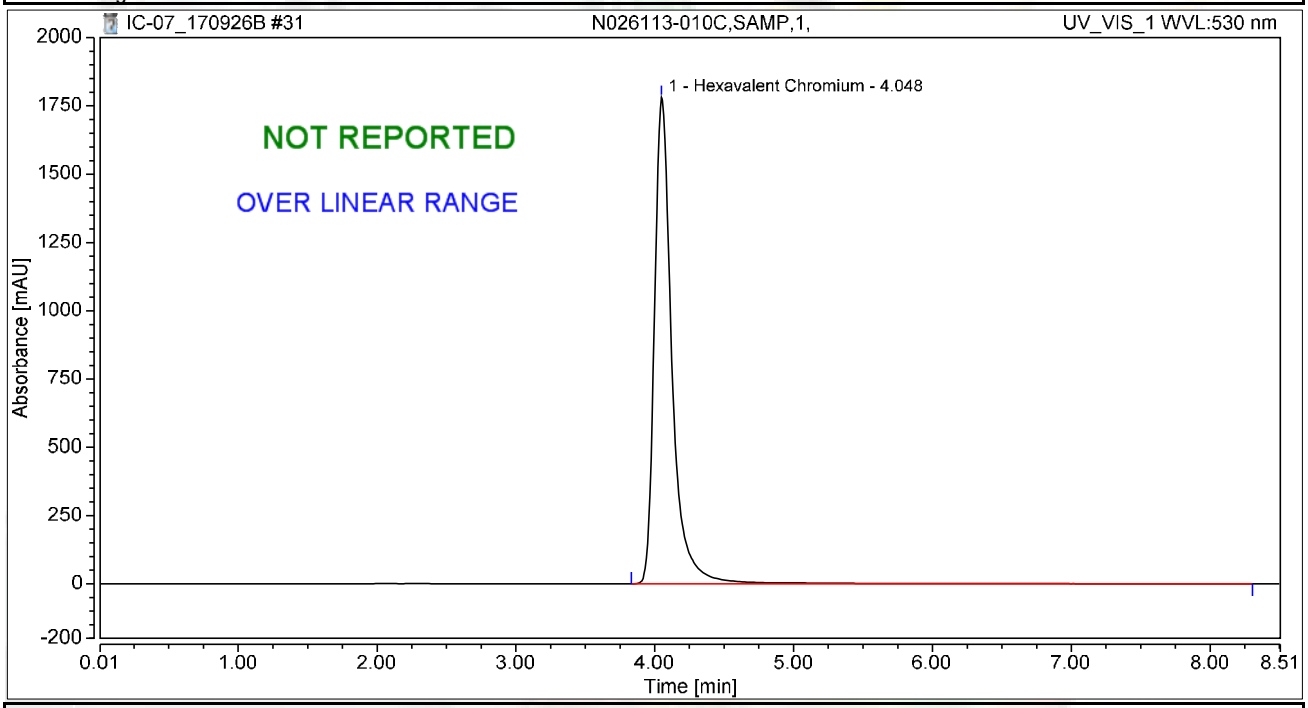
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	2.520	18.555	100.00	100.00	9.7107
Total:			**2.520**	**18.555**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-010C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

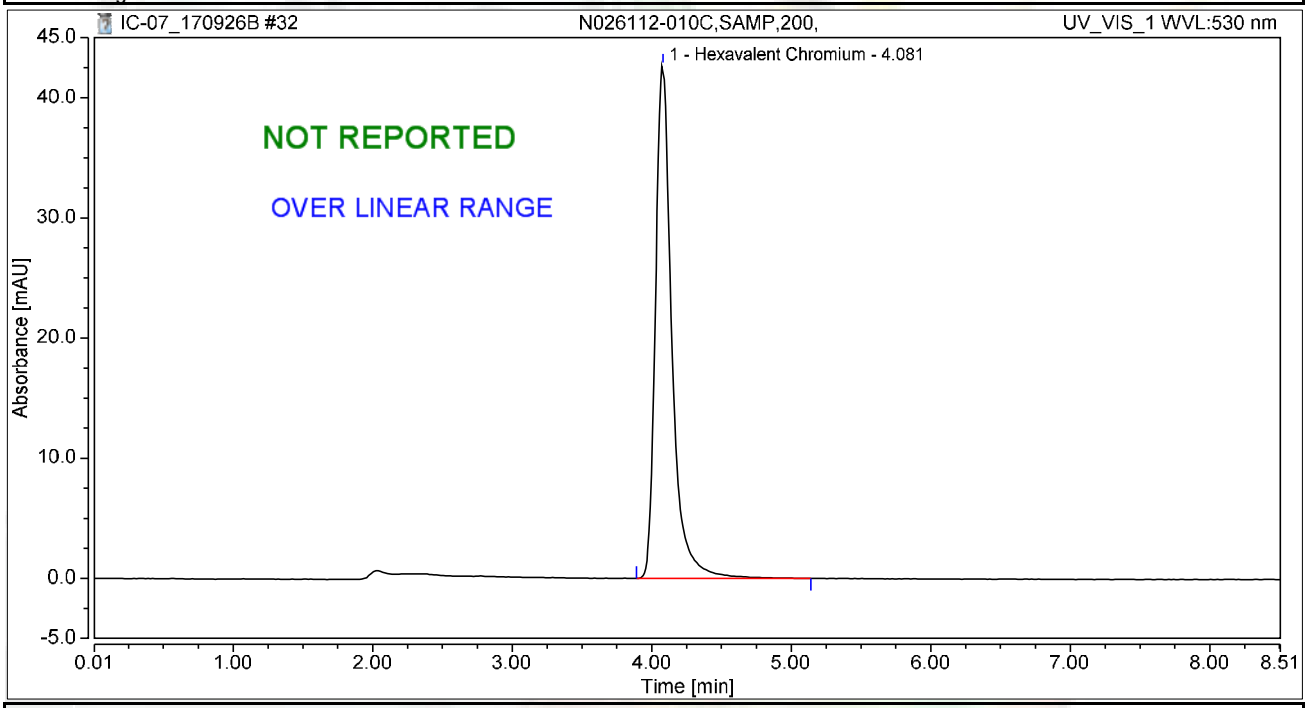
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	262.657	1780.749	100.00	100.00	1011.9895
Total:			**262.657**	**1780.749**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-010C,SAMP,200,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

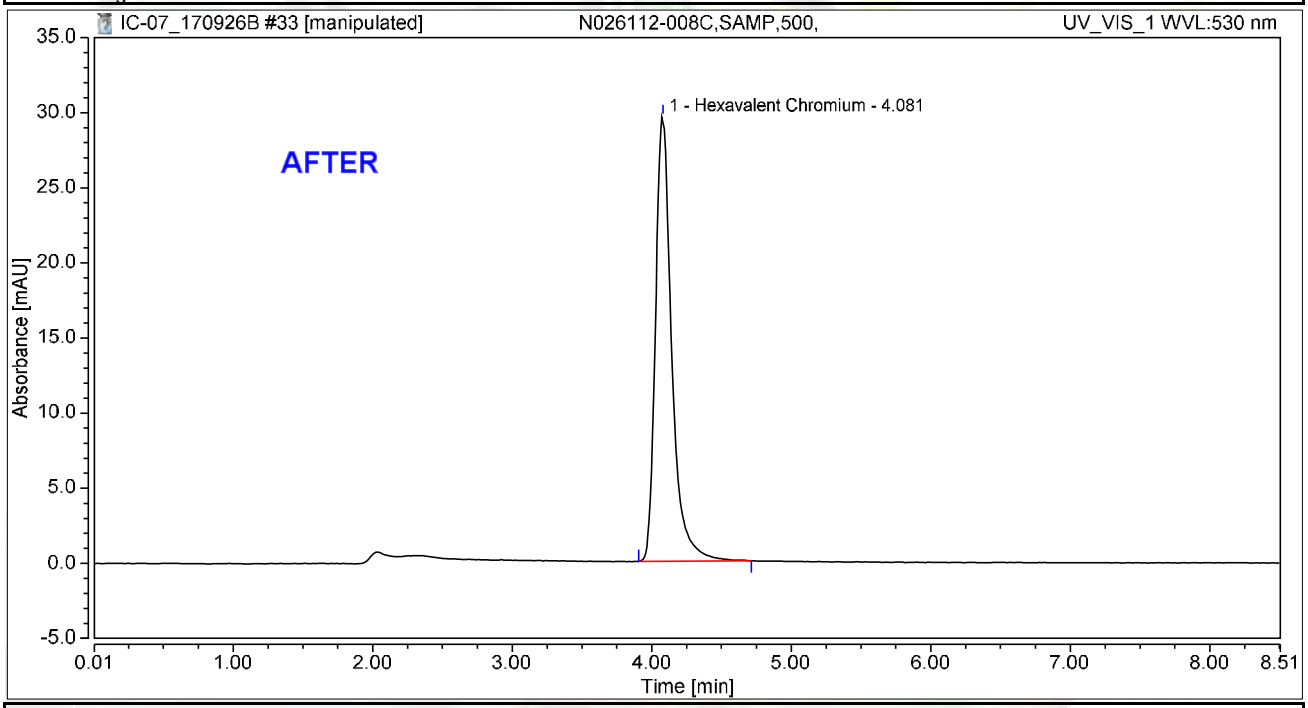
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	5.835	42.662	100.00	100.00	22.4806
Total:			**5.835**	**42.662**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-008C,SAMP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	4.001	29.606	100.00	100.00	15.4155
Total:			**4.001**	**29.606**	**100.00**	**100.00**	

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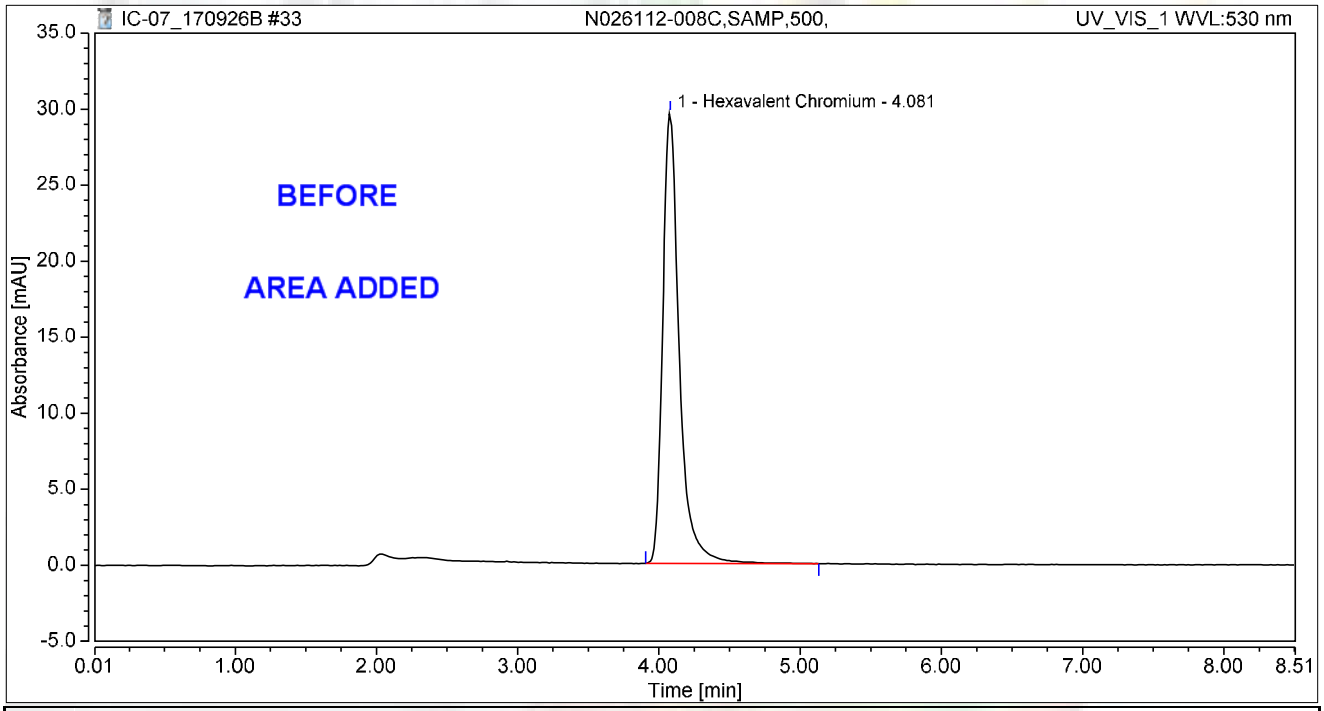
Chromatogram and Results

Injection Details

Injection Name:	**N026112-008C,SAMP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	4.040	29.620	100.00	100.00	15.5643
Total:			**4.040**	**29.620**	**100.00**	**100.00**	

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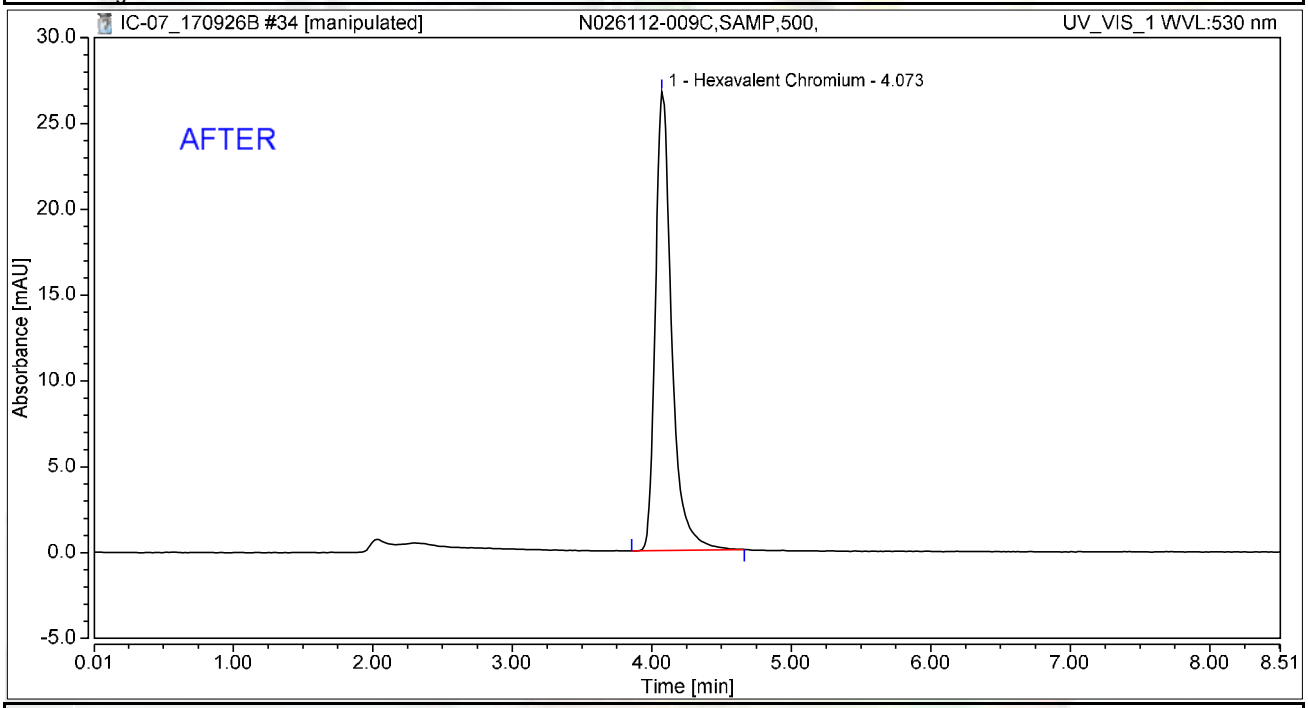
Chromatogram and Results

Injection Details

Injection Name:	**N026112-009C,SAMP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.620	26.745	100.00	100.00	13.9459
Total:			**3.620**	**26.745**	**100.00**	**100.00**	

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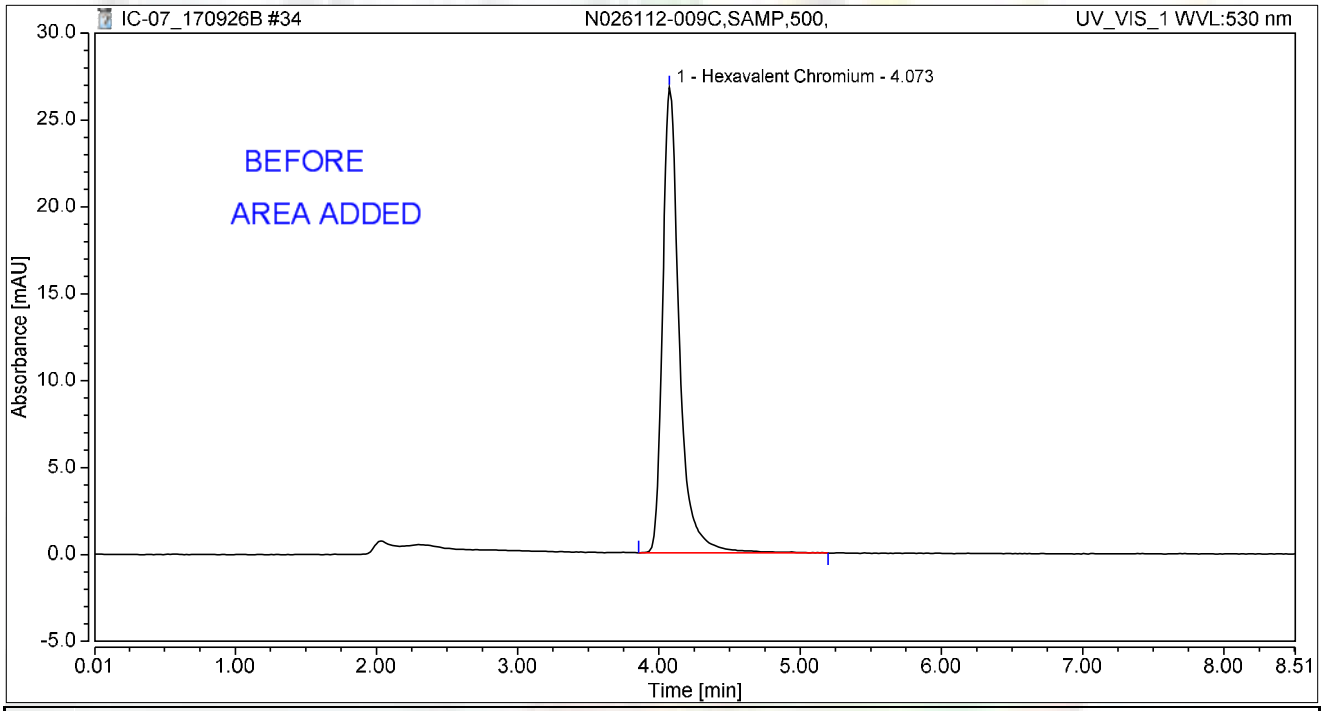
Chromatogram and Results

Injection Details

Injection Name:	**N026112-009C,SAMP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.674	26.768	100.00	100.00	14.1565
Total:			**3.674**	**26.768**	**100.00**	**100.00**	

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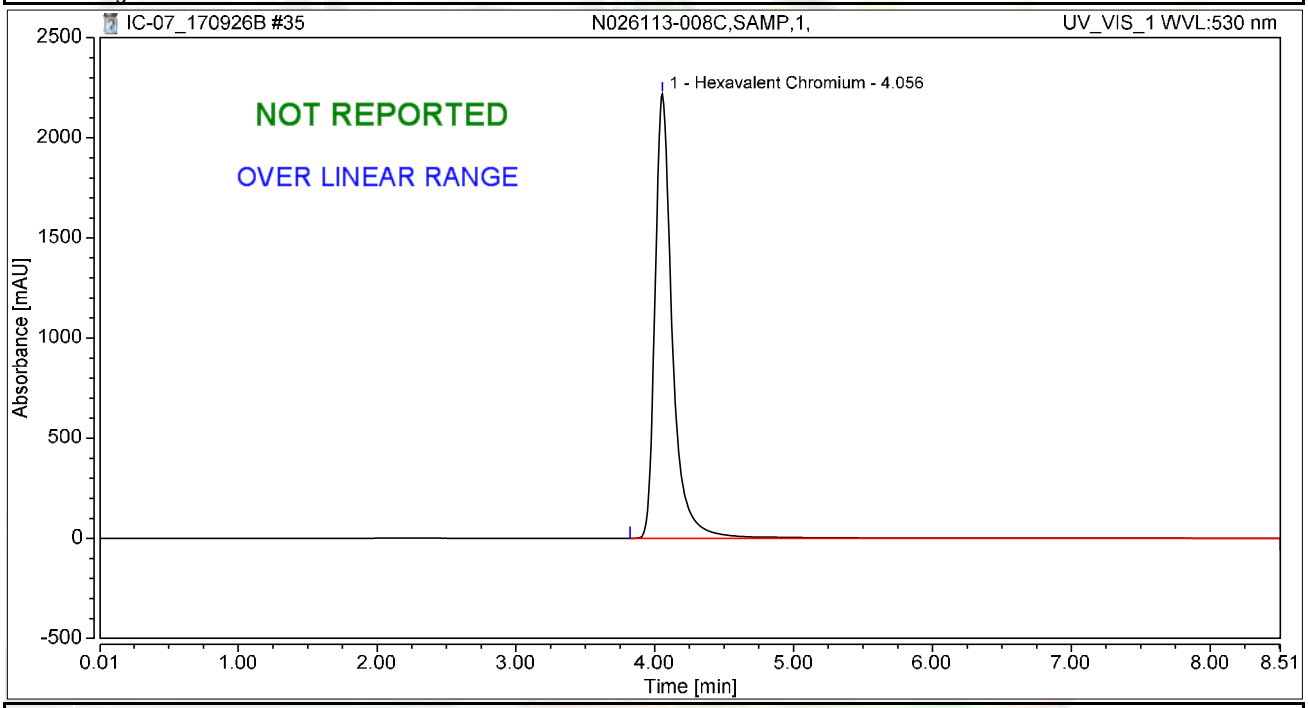
Chromatogram and Results

Injection Details

Injection Name:	**N026113-008C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 00:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

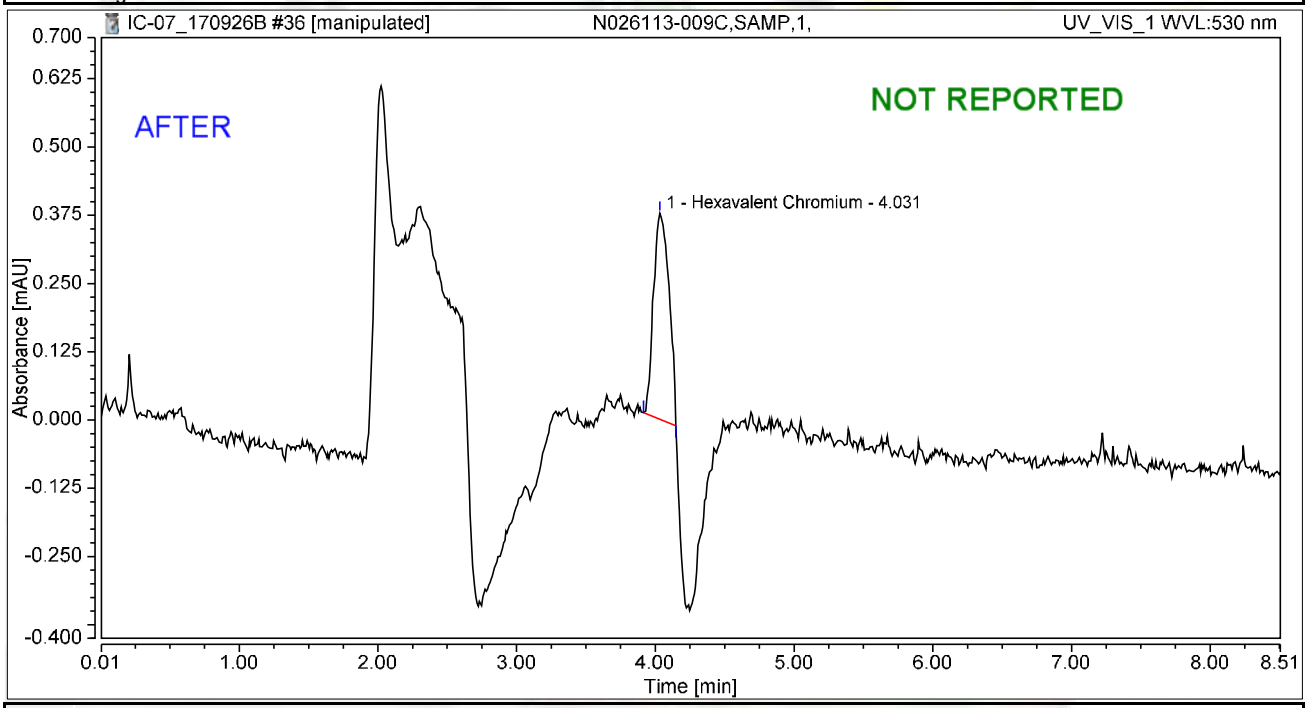
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	323.309	2218.590	100.00	100.00	1245.6753
Total:			**323.309**	**2218.590**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-009C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.049	0.377	100.00	100.00	0.1874
Total:			**0.049**	**0.377**	**100.00**	**100.00**	

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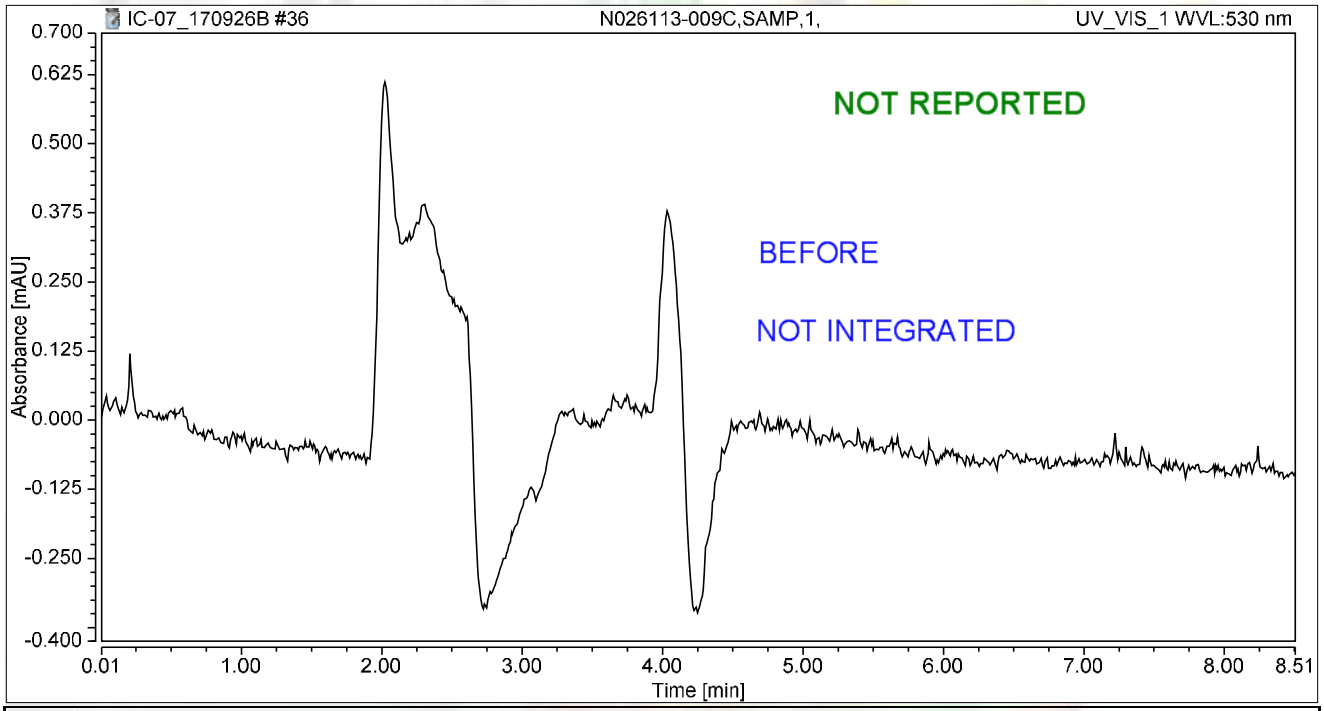
Chromatogram and Results

Injection Details

Injection Name:	**N026113-009C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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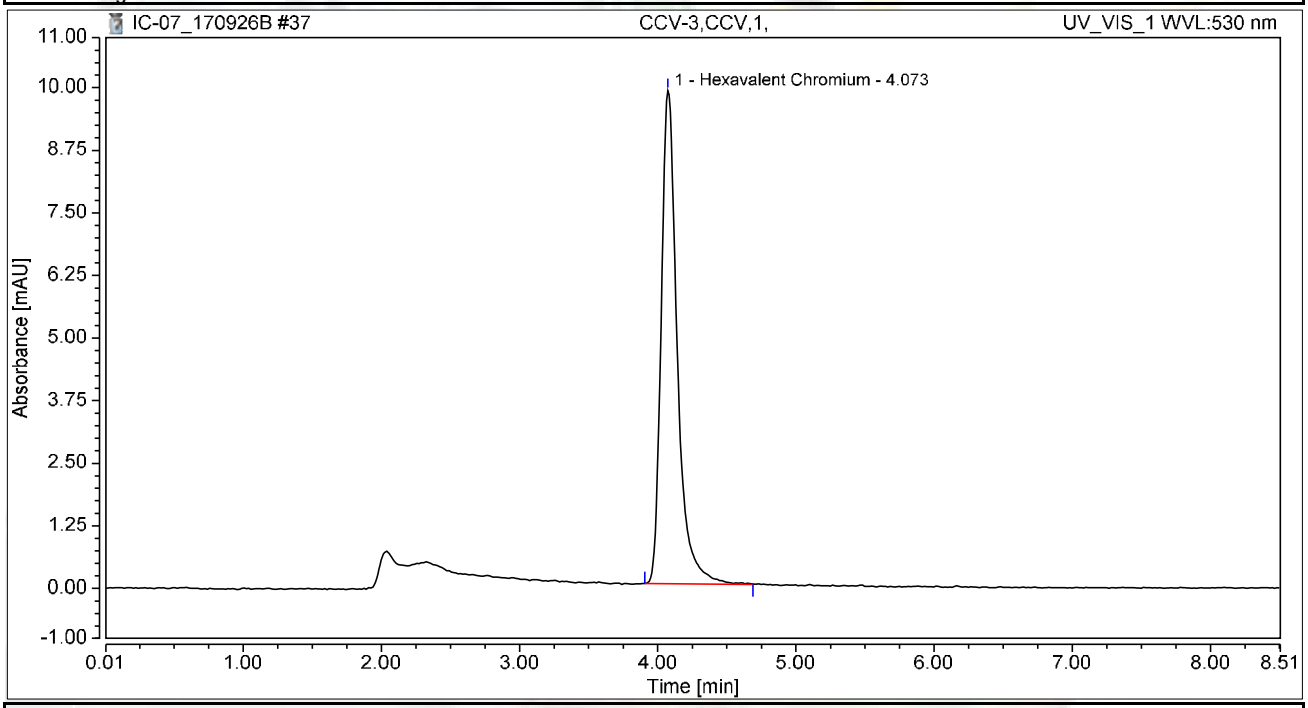
Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

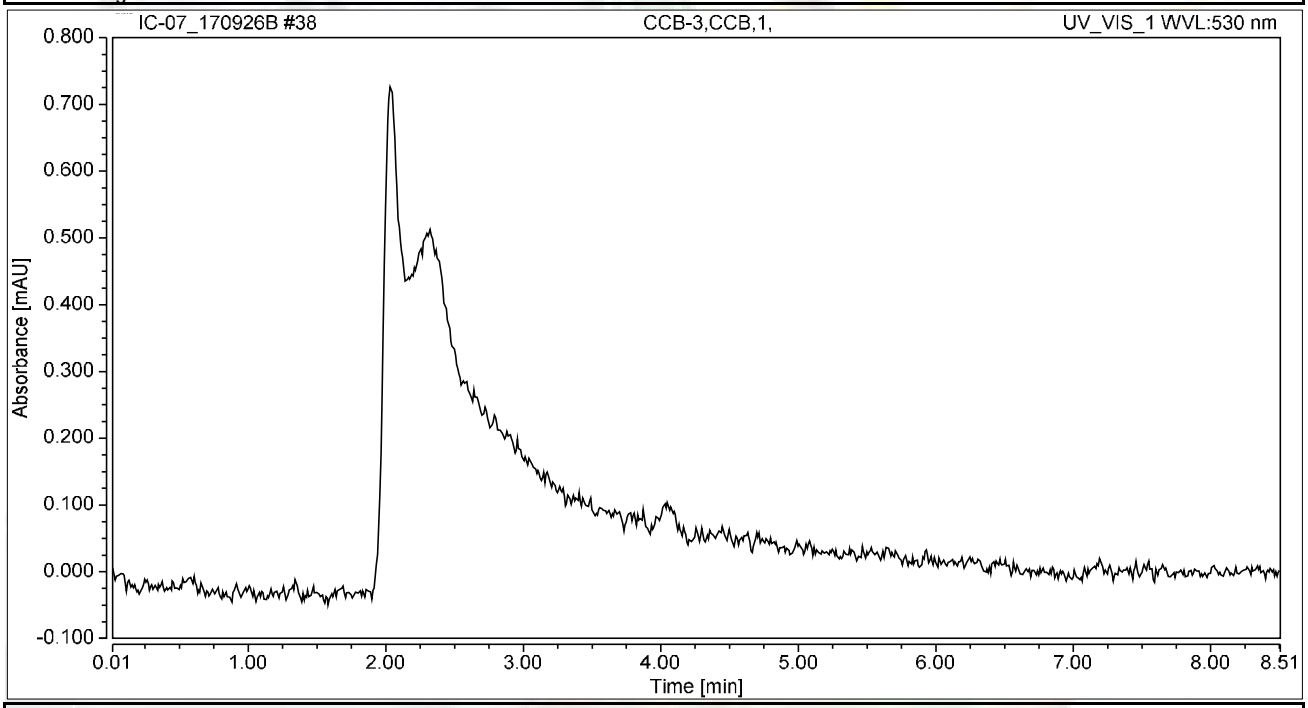
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	1.327	9.850	100.00	100.00	5.1138
Total:			**1.327**	**9.850**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

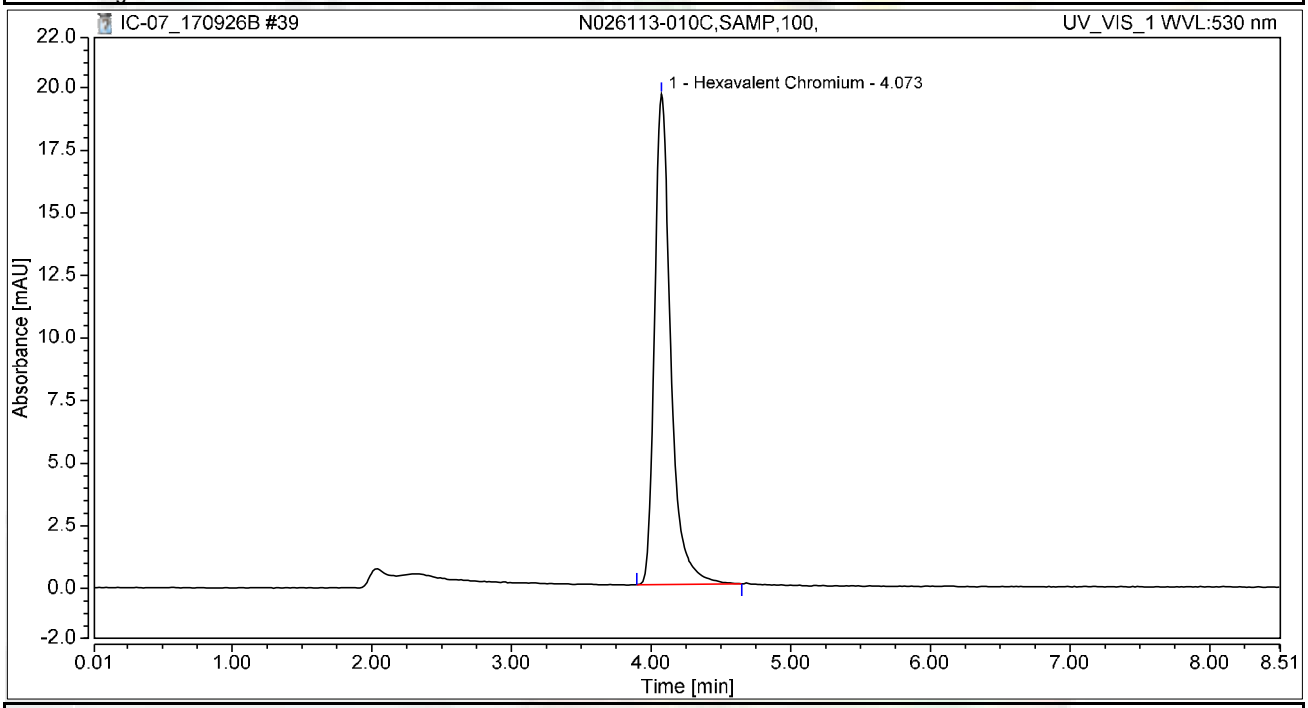
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-010C,SAMP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

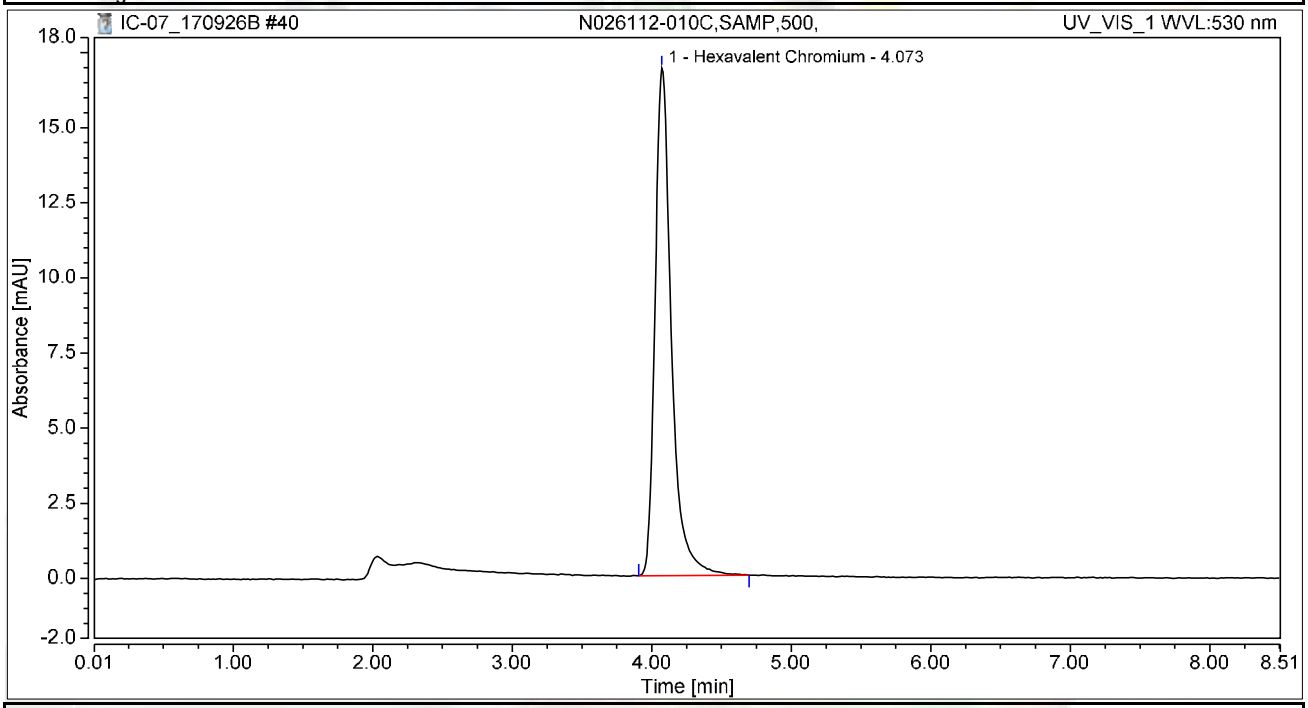
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.638	19.585	100.00	100.00	10.1630
Total:			**2.638**	**19.585**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-010C,SAMP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

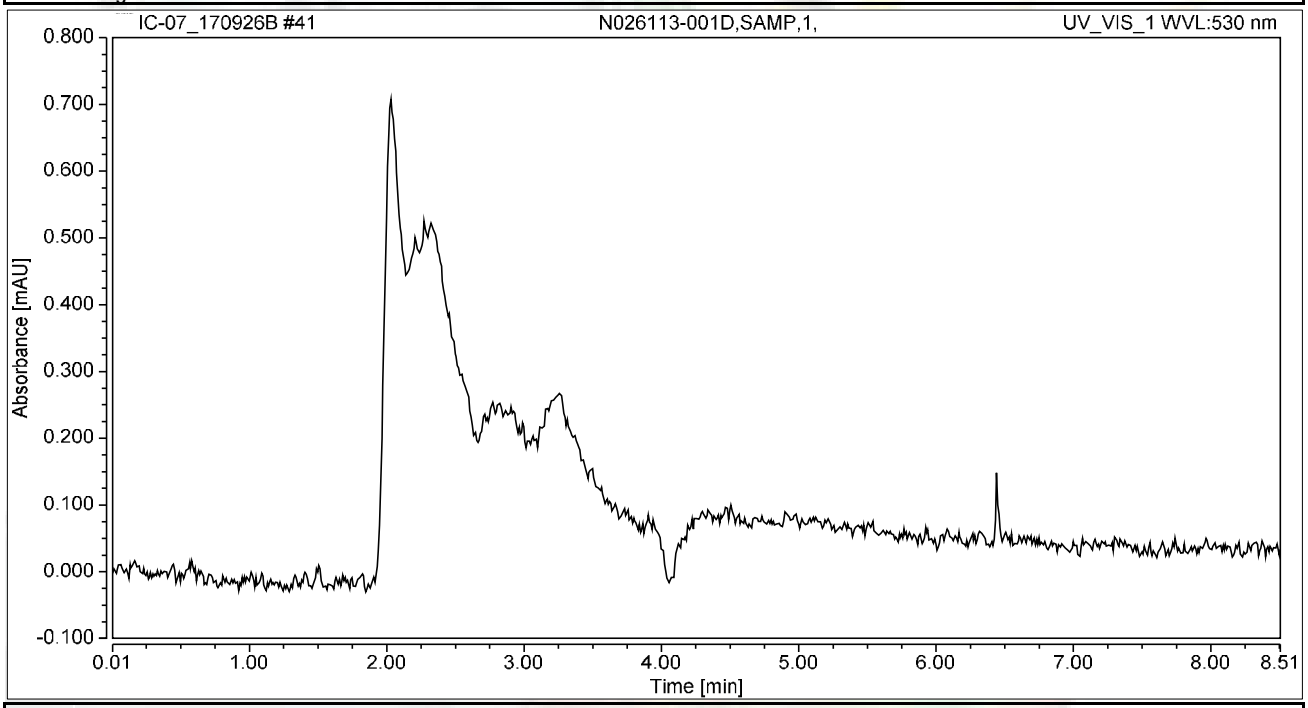
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.293	16.909	100.00	100.00	8.8334
Total:			**2.293**	**16.909**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-001D,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 01:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

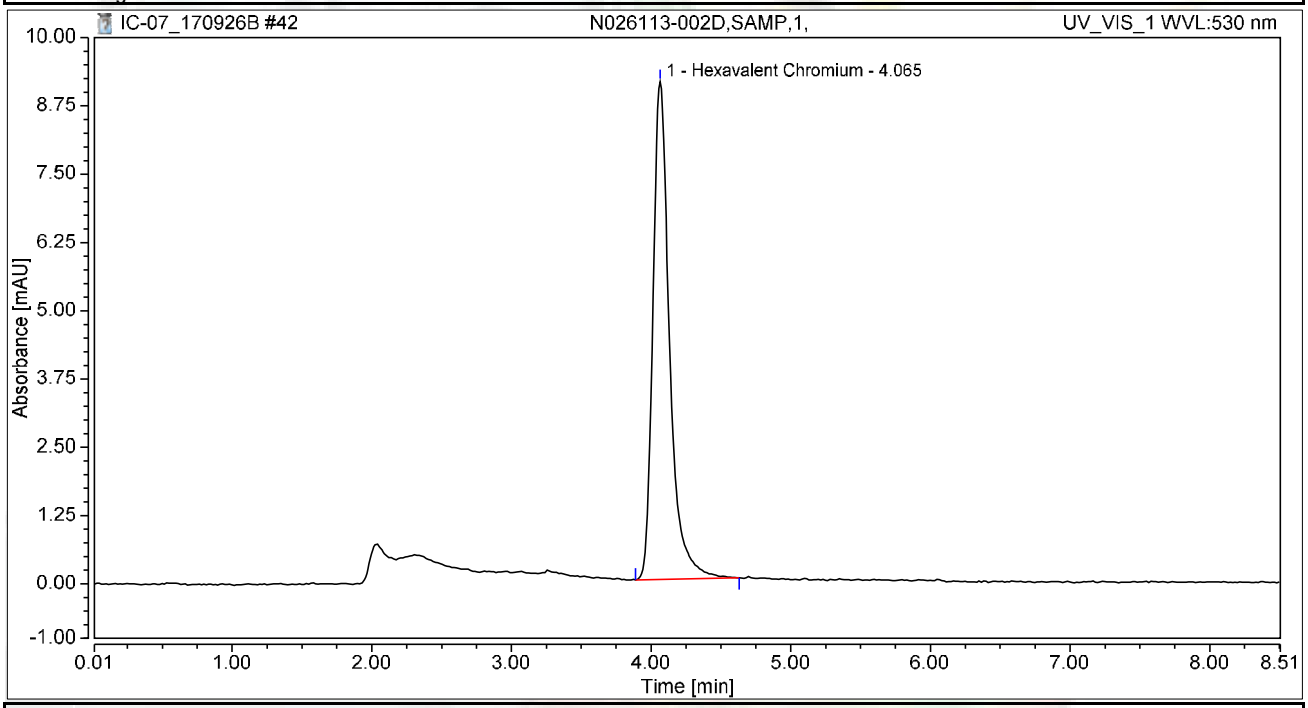
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-002D,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

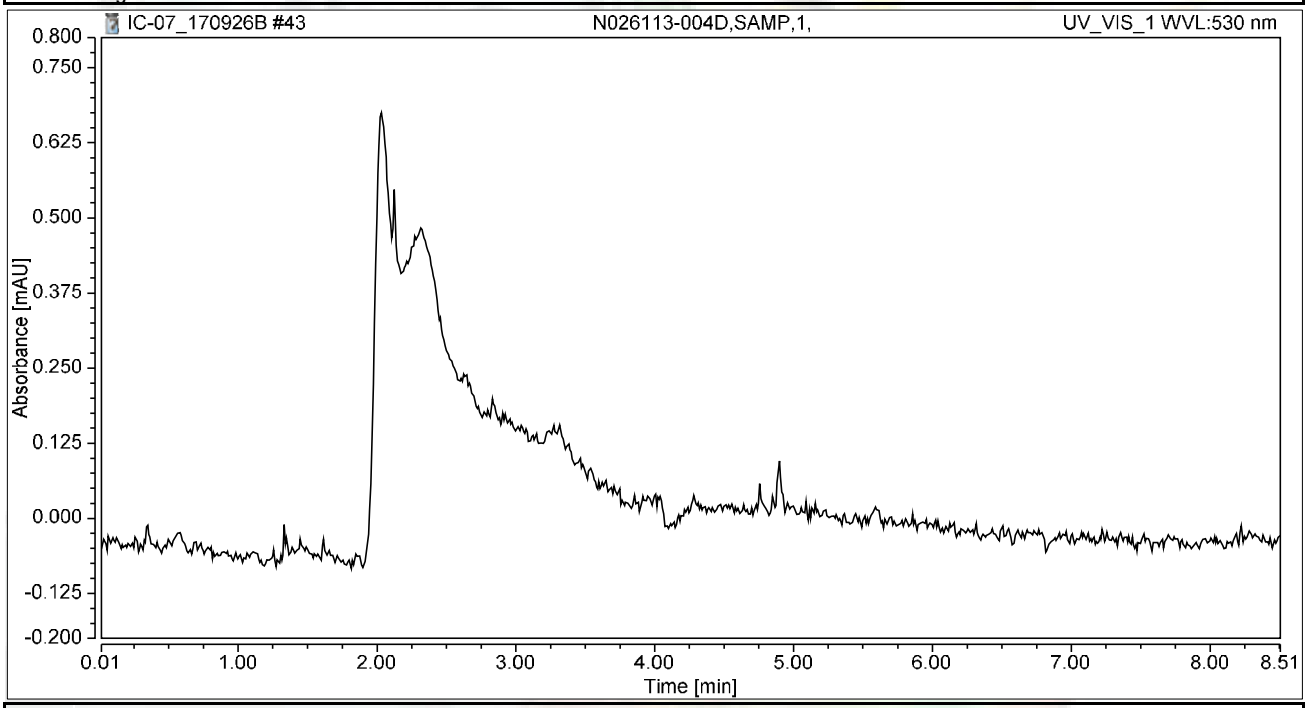
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.258	9.111	100.00	100.00	4.8464
Total:			**1.258**	**9.111**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-004D,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

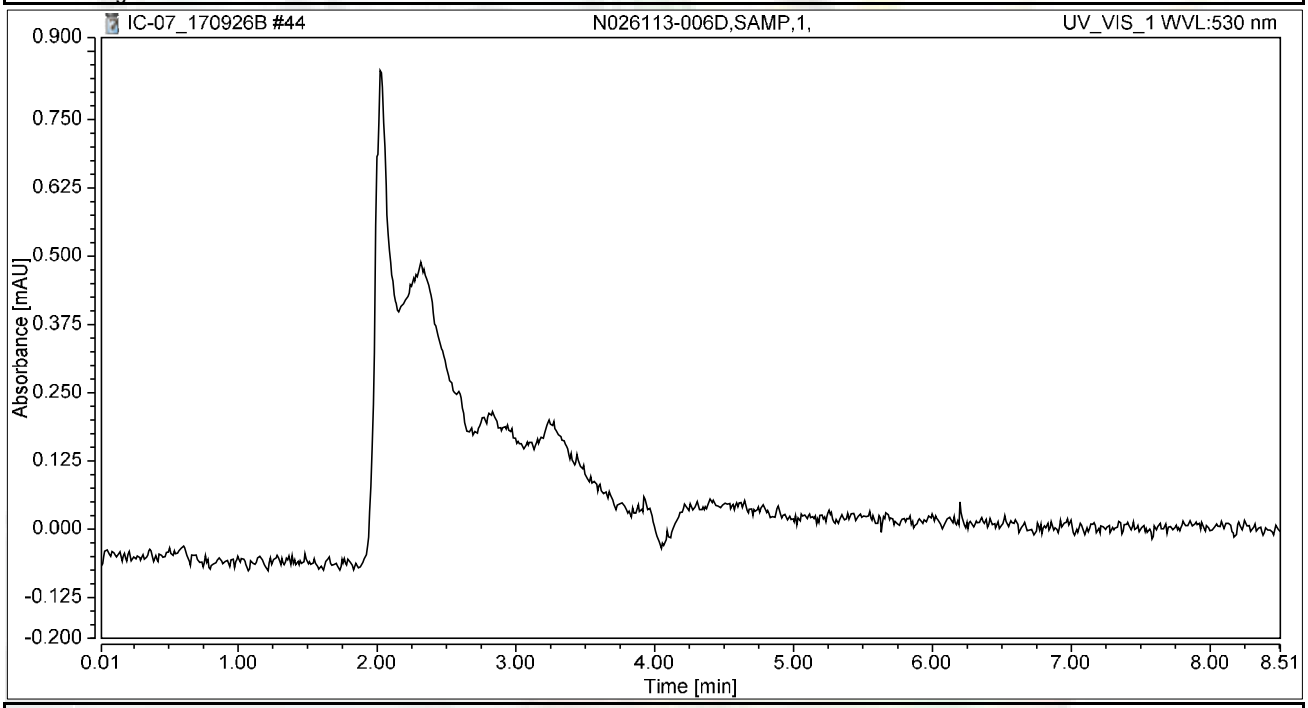
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-006D,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

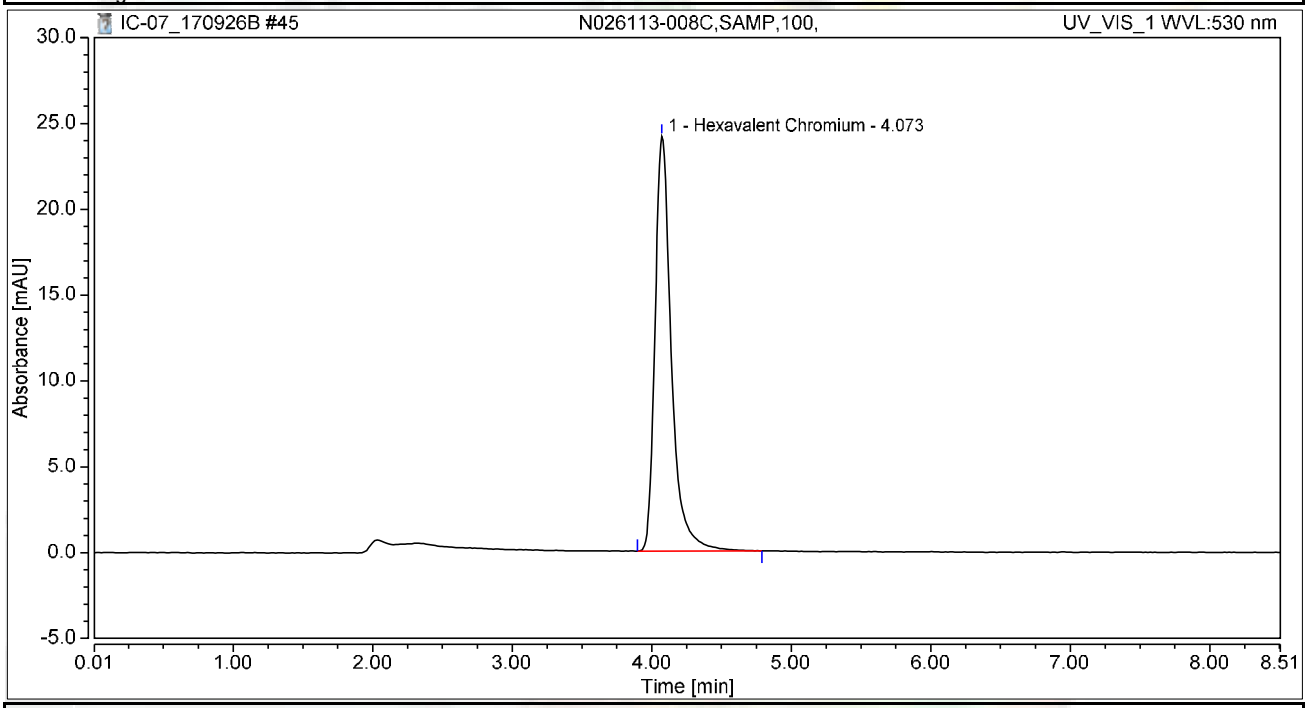
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-008C,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

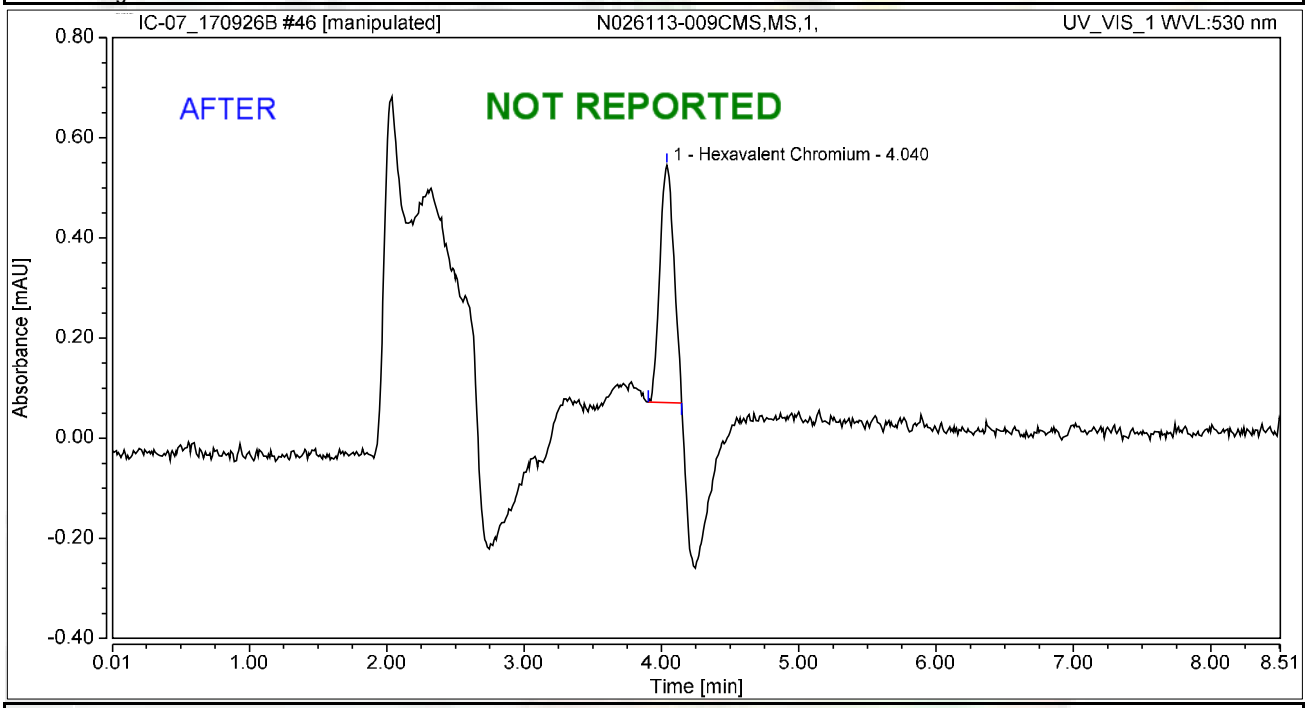
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.285	24.166	100.00	100.00	12.6548
Total:			**3.285**	**24.166**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-009CMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.056	0.474	100.00	100.00	0.2164
Total:			**0.056**	**0.474**	**100.00**	**100.00**	

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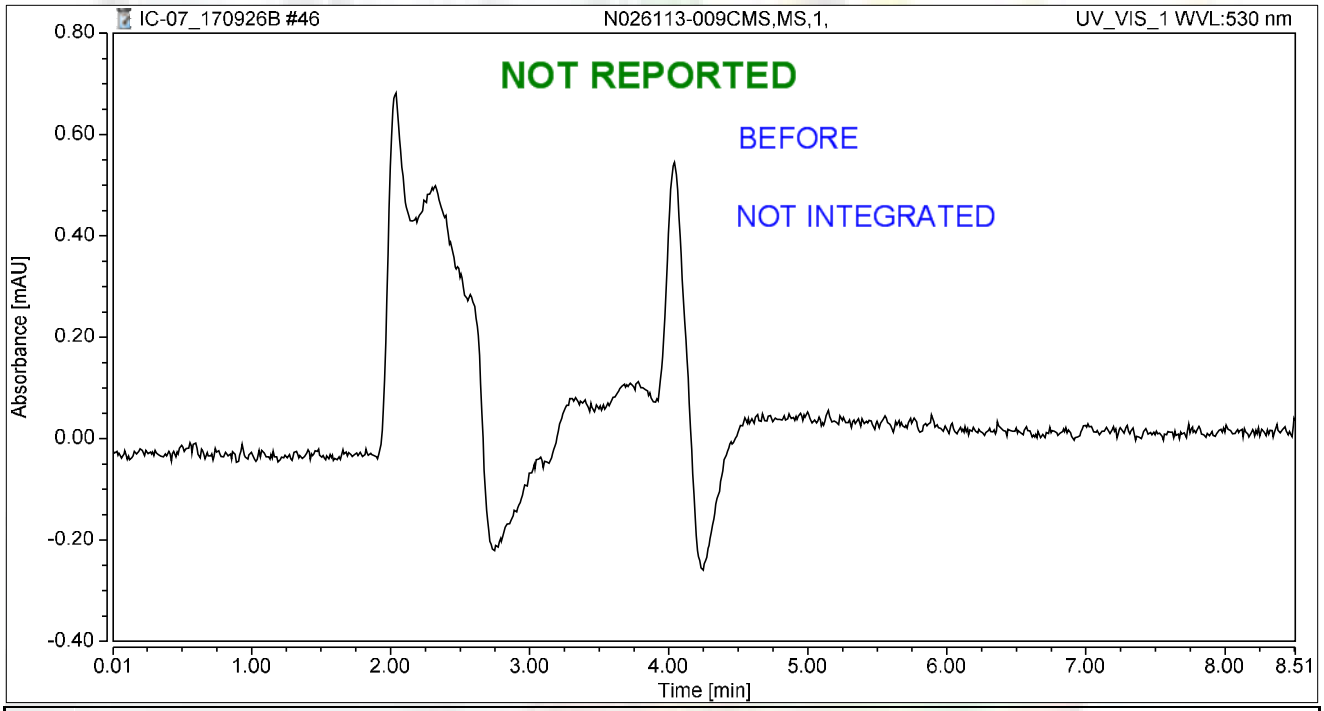
Chromatogram and Results

Injection Details

Injection Name:	**N026113-009CMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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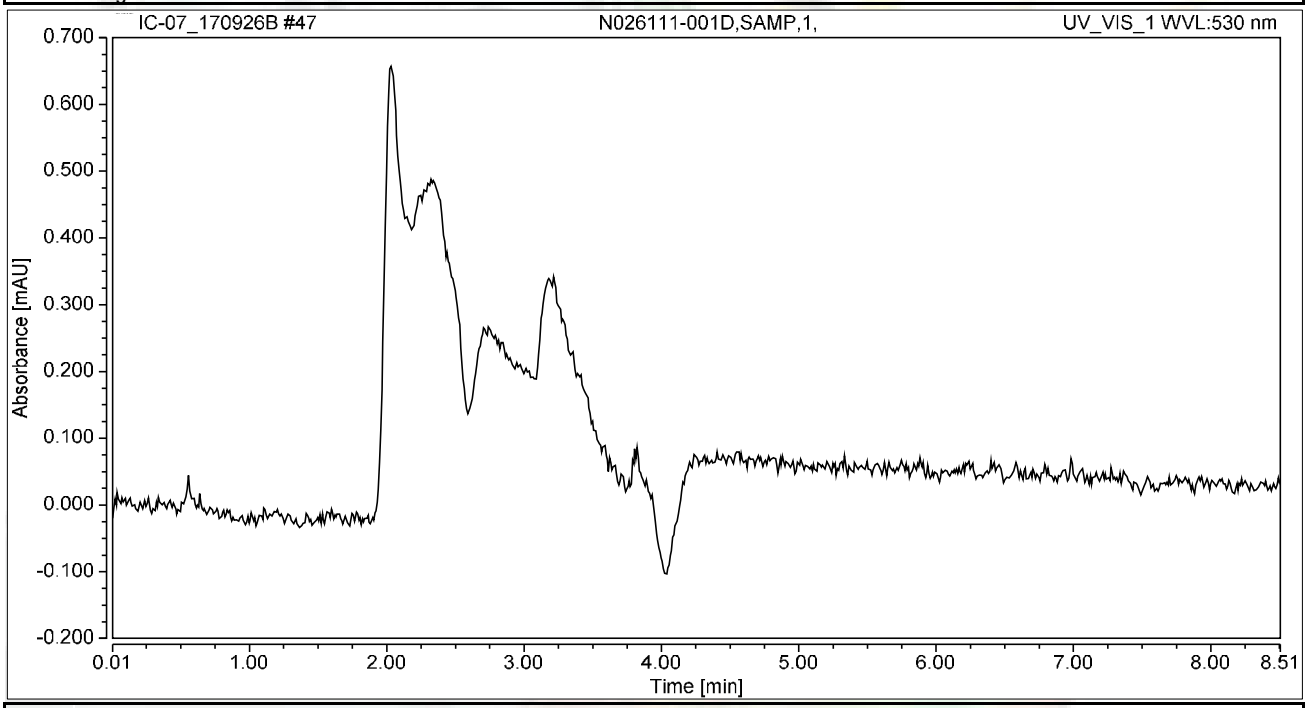
Chromatogram and Results

Injection Details

Injection Name:	**N026111-001D,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 02:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

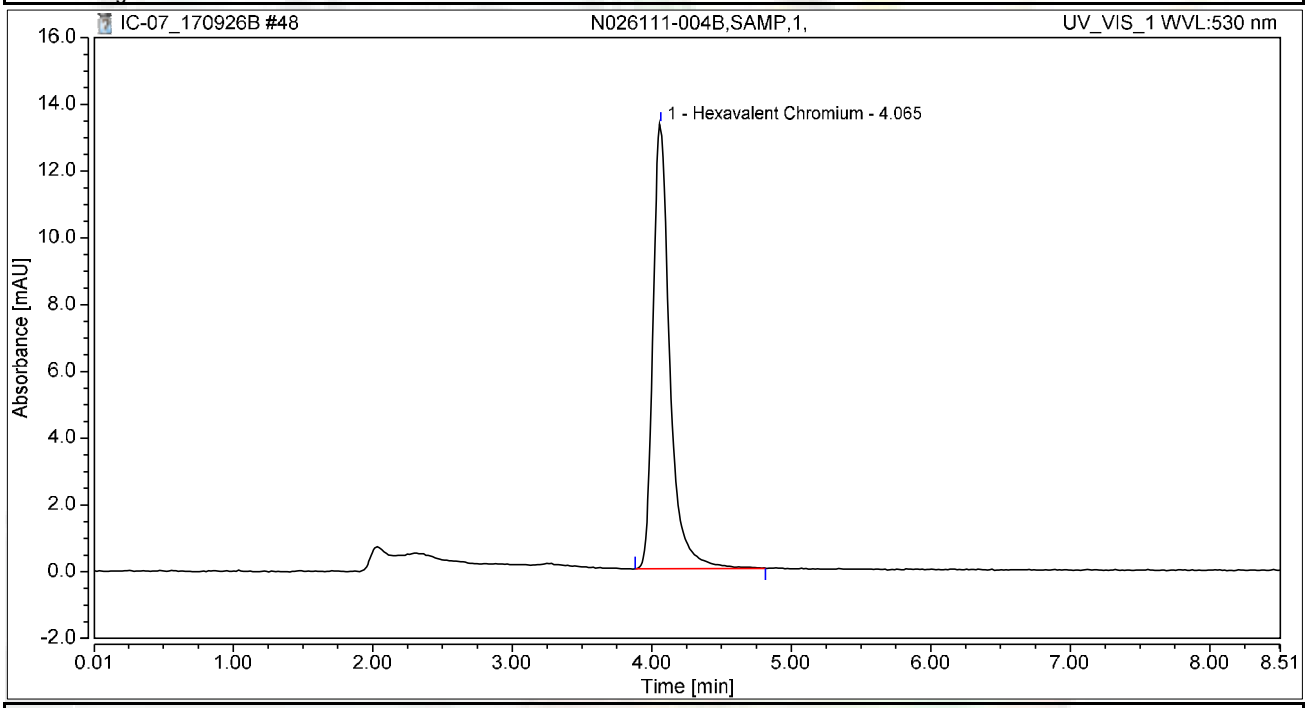
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026111-004B,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

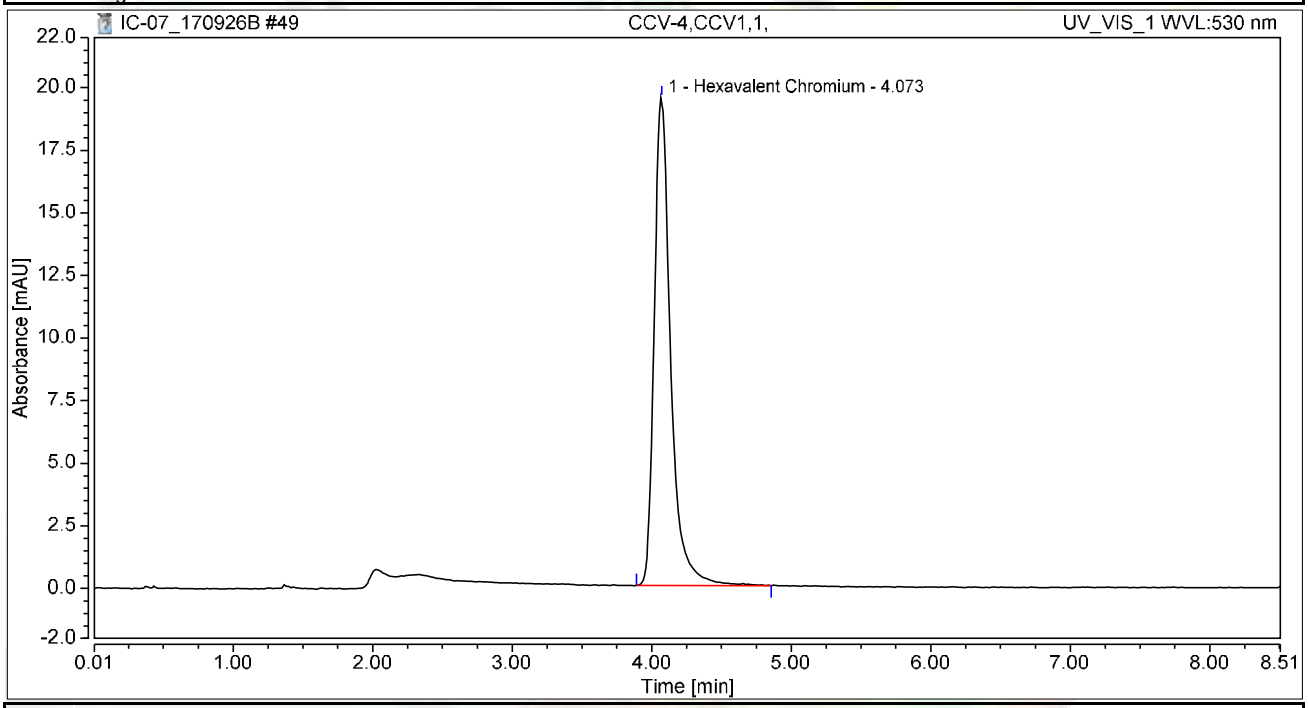
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.863	13.312	100.00	100.00	7.1795
Total:			**1.863**	**13.312**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

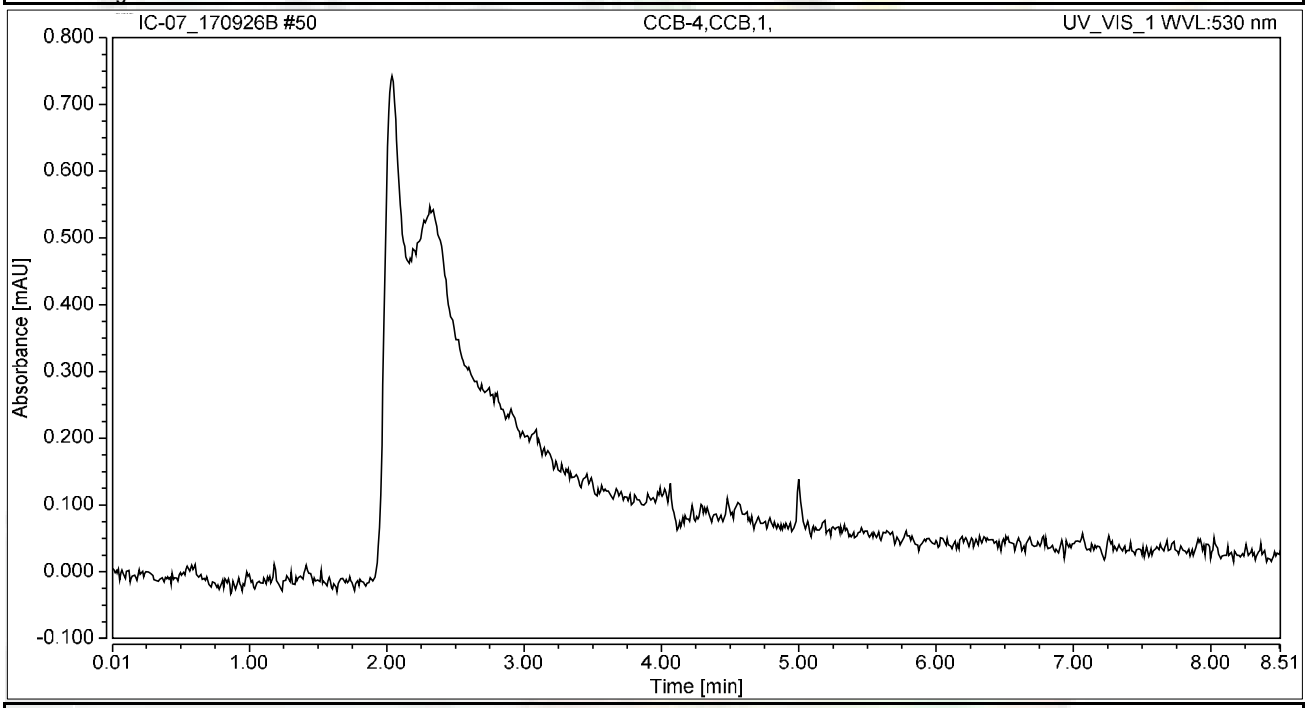
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.655	19.482	100.00	100.00	10.2299
Total:			**2.655**	**19.482**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

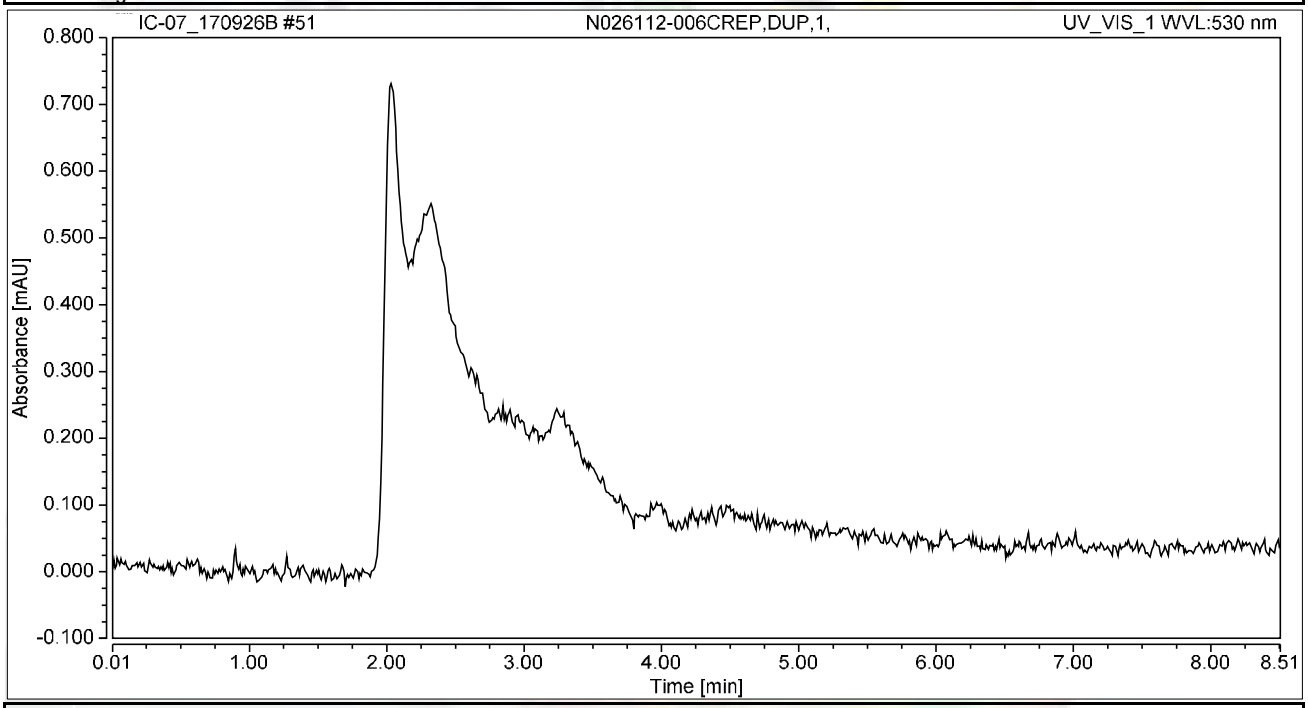
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-006CREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

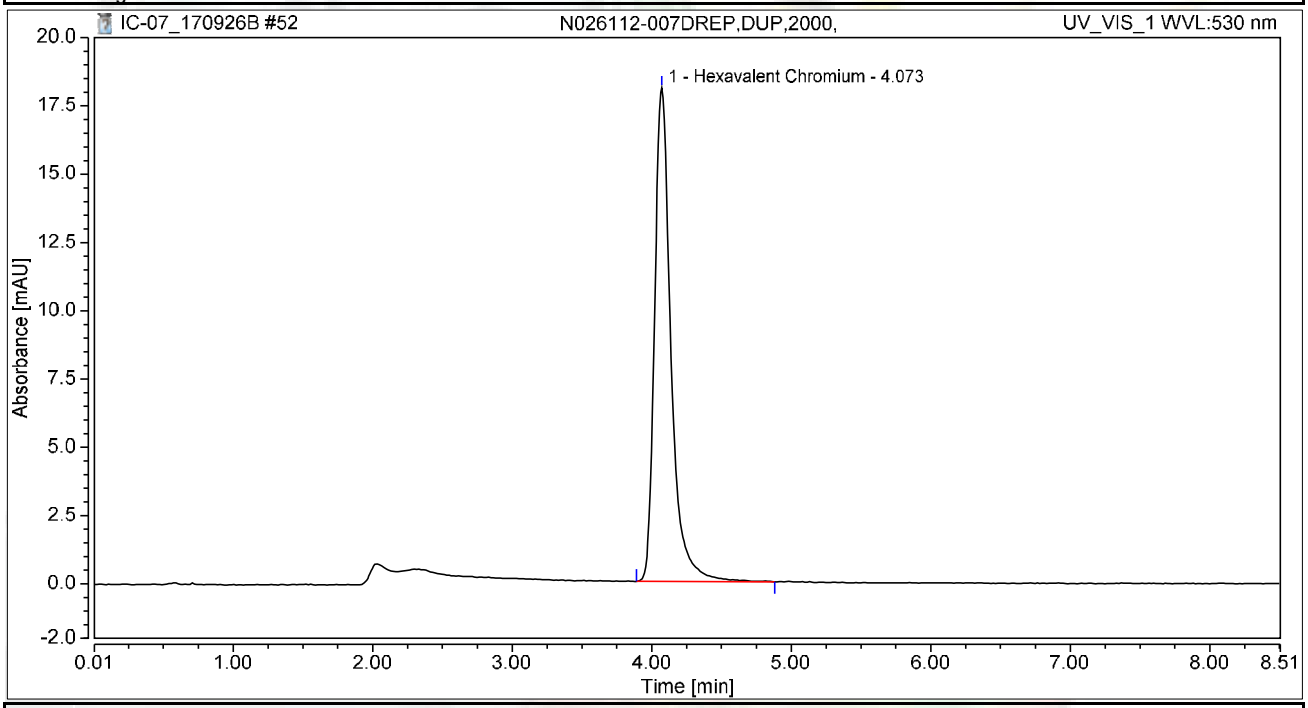
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-007DREP,DUP,2000,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

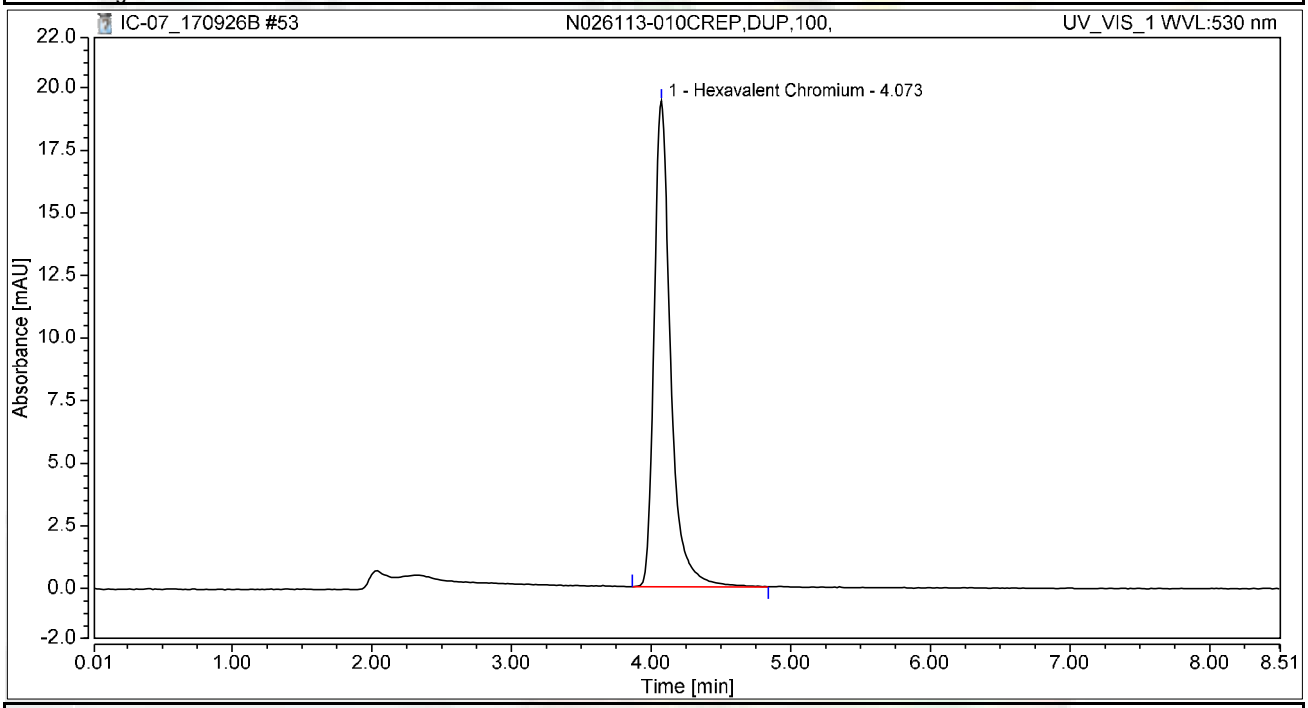
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.454	18.071	100.00	100.00	9.4557
Total:			**2.454**	**18.071**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-010CREP,DUP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

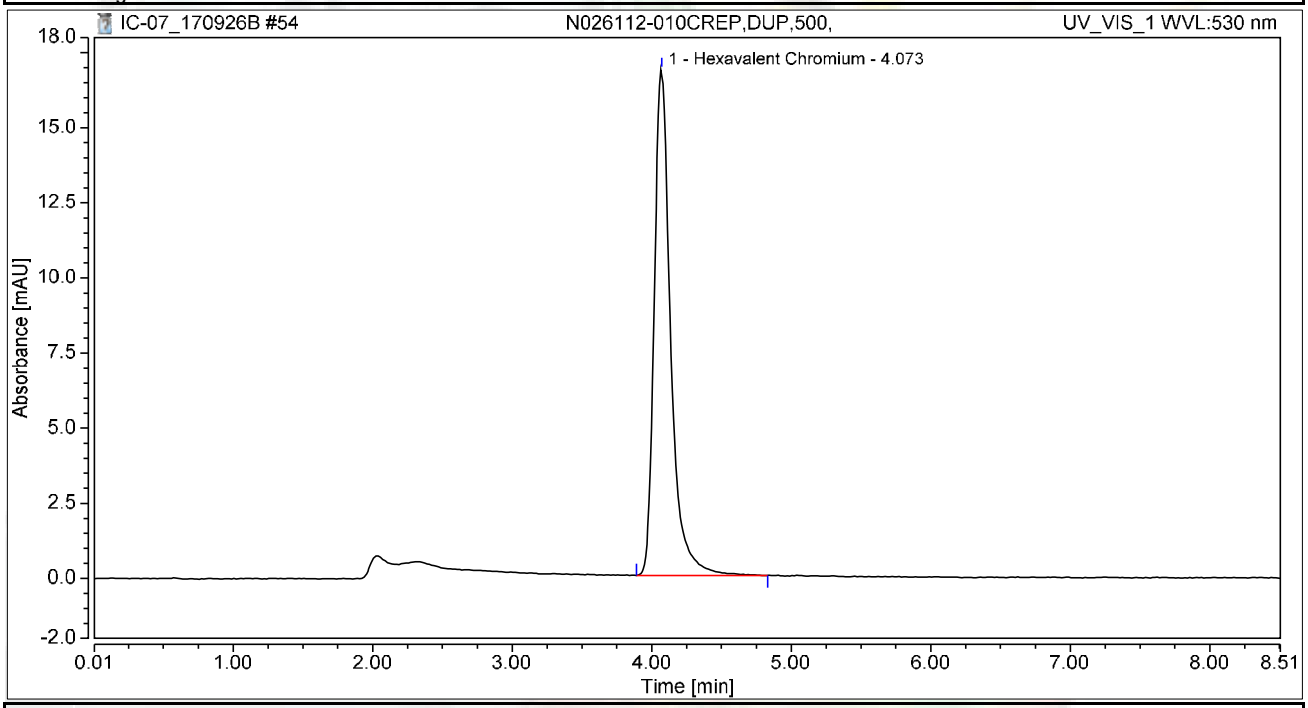
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.656	19.394	100.00	100.00	10.2351
Total:			**2.656**	**19.394**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-010CREP,DUP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 03:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

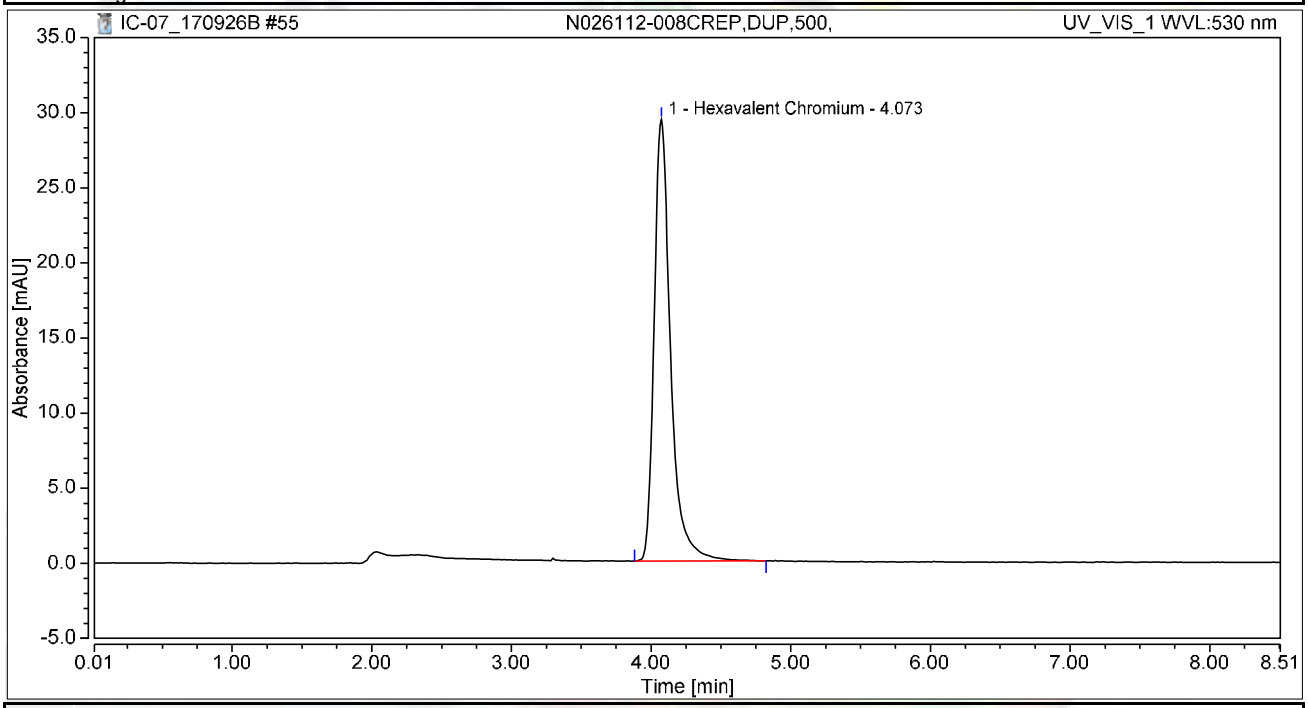
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	2.302	16.835	100.00	100.00	8.8679
Total:			**2.302**	**16.835**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-008CREP,DUP,500,**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

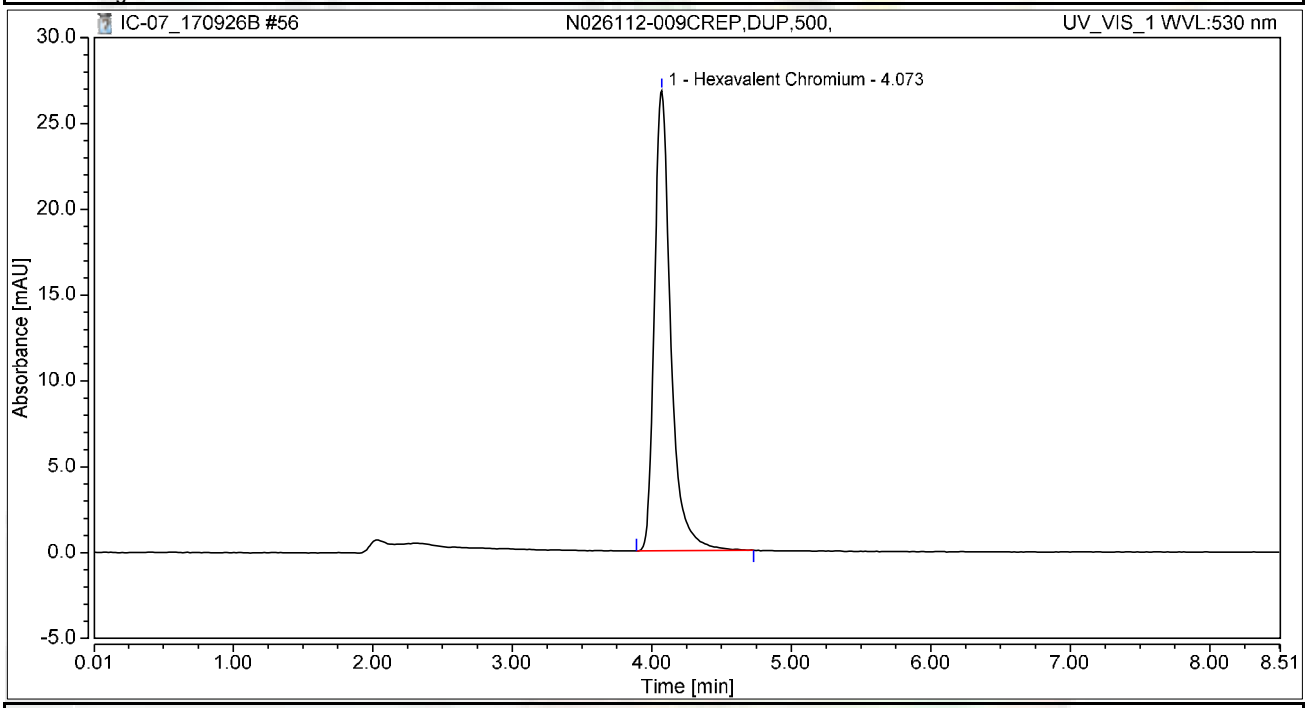
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	4.015	29.421	100.00	100.00	15.4680
Total:			**4.015**	**29.421**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026112-009CREP,DUP,500,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

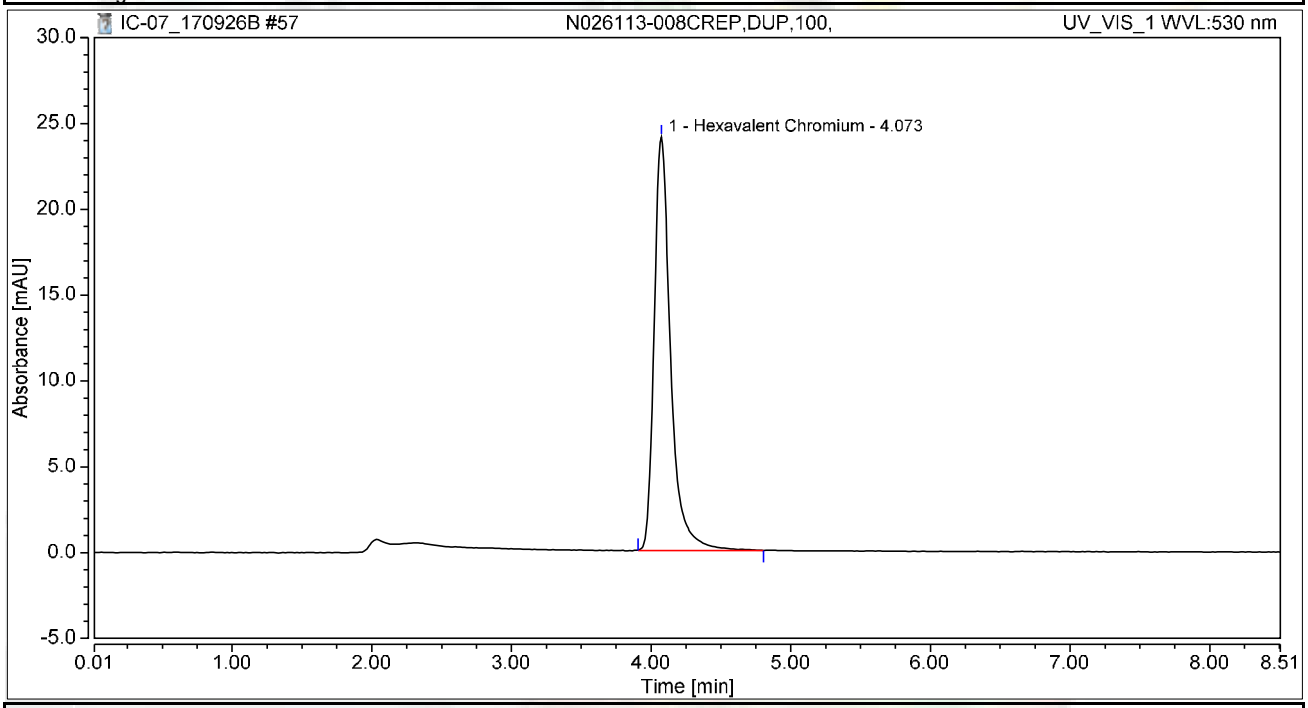
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.633	26.800	100.00	100.00	13.9971
Total:			**3.633**	**26.800**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-008CREP,DUP,100,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

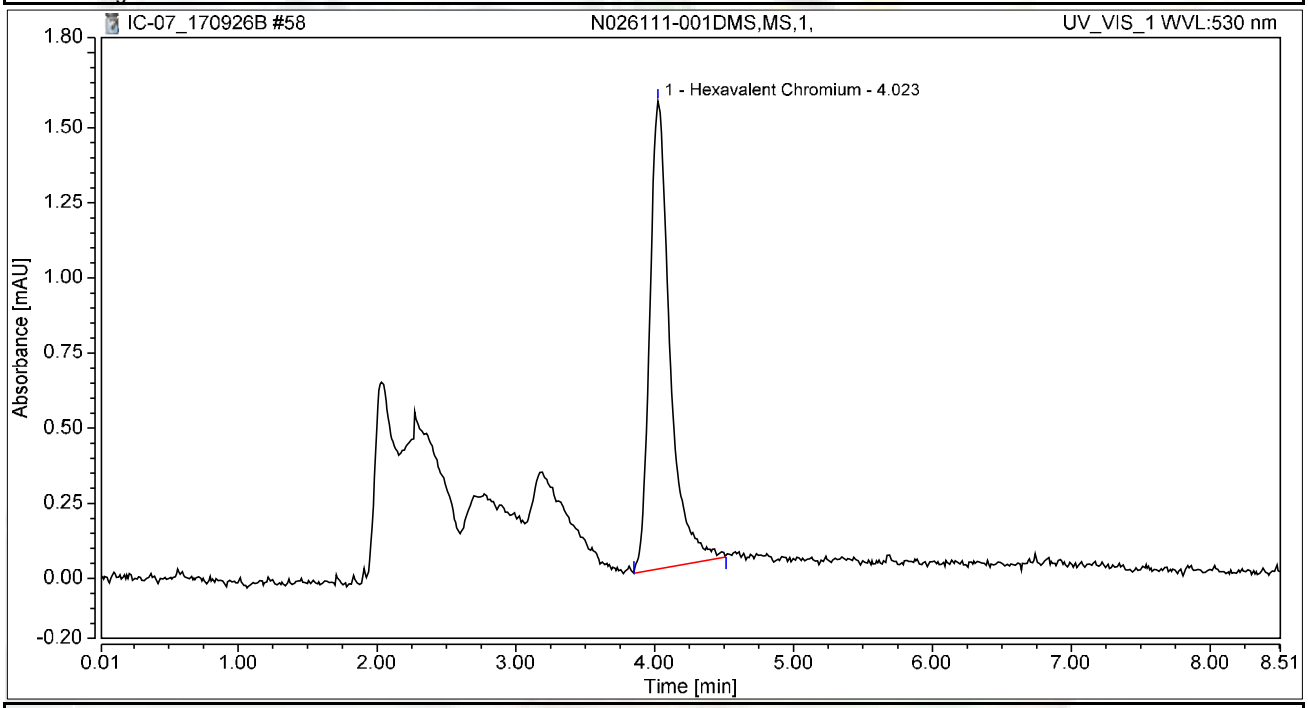
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	3.283	24.068	100.00	100.00	12.6509
Total:			**3.283**	**24.068**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026111-001DMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

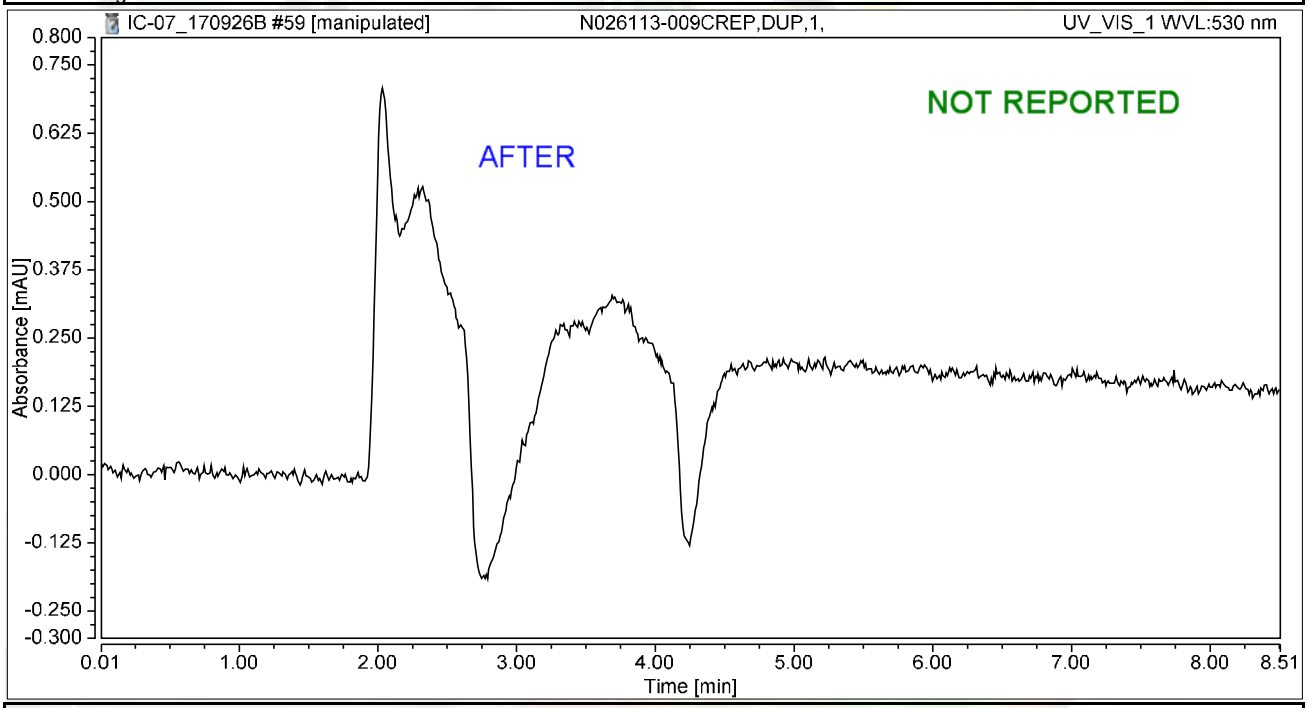
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.264	1.557	100.00	100.00	1.0183
Total:			**0.264**	**1.557**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-009CREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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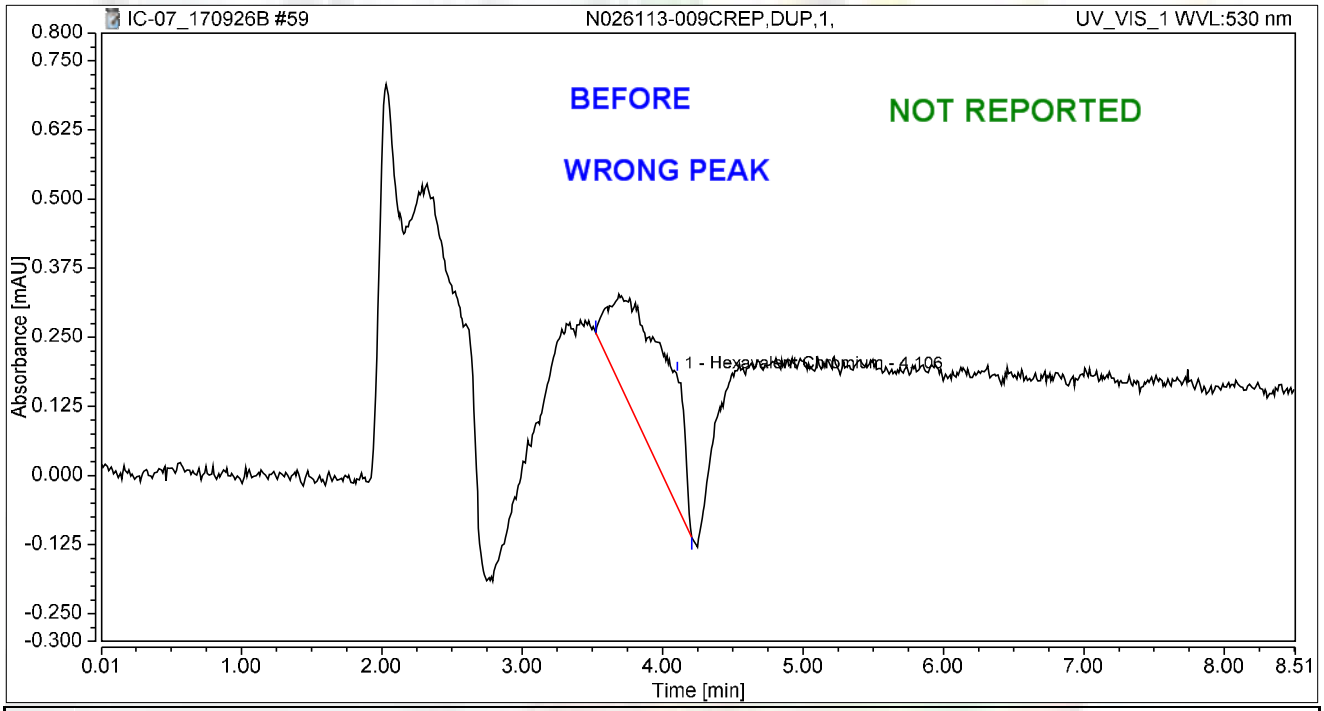
Chromatogram and Results

Injection Details

Injection Name:	**N026113-009CREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.106	0.114	0.241	100.00	100.00	0.4379
Total:			**0.114**	**0.241**	**100.00**	**100.00**	

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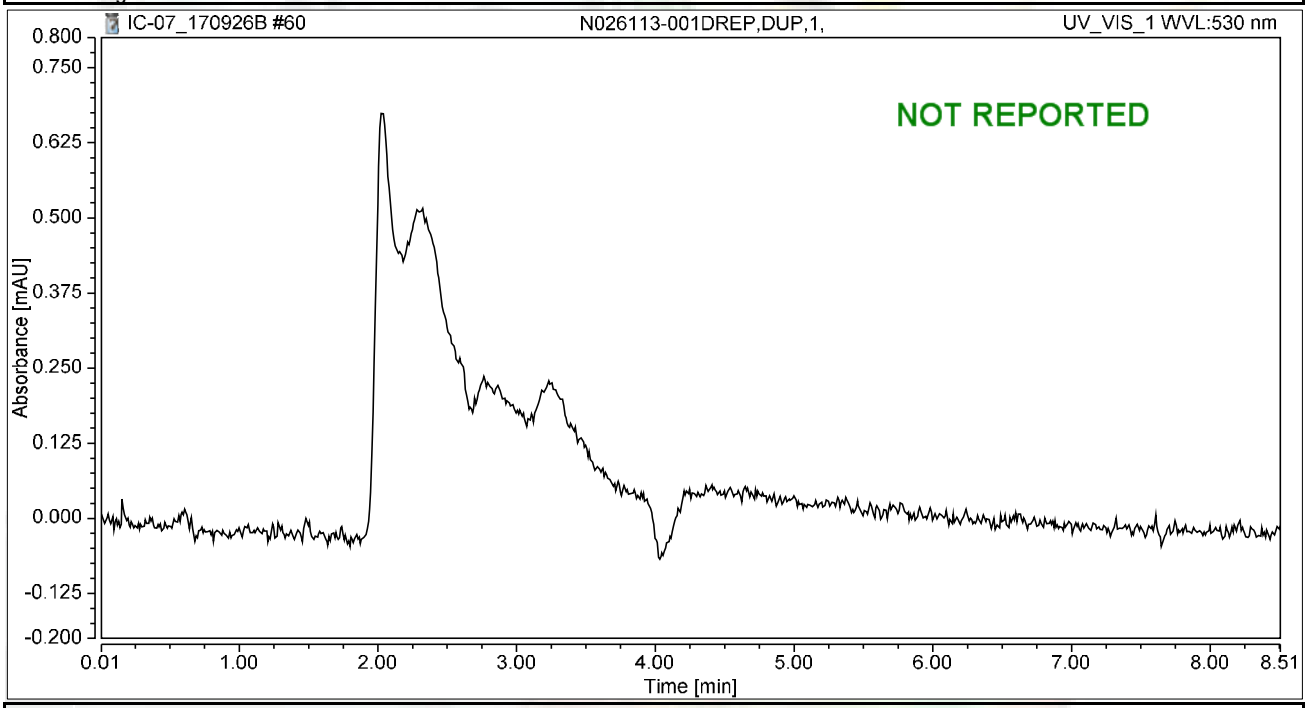
Chromatogram and Results

Injection Details

Injection Name:	**N026113-001DREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 04:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

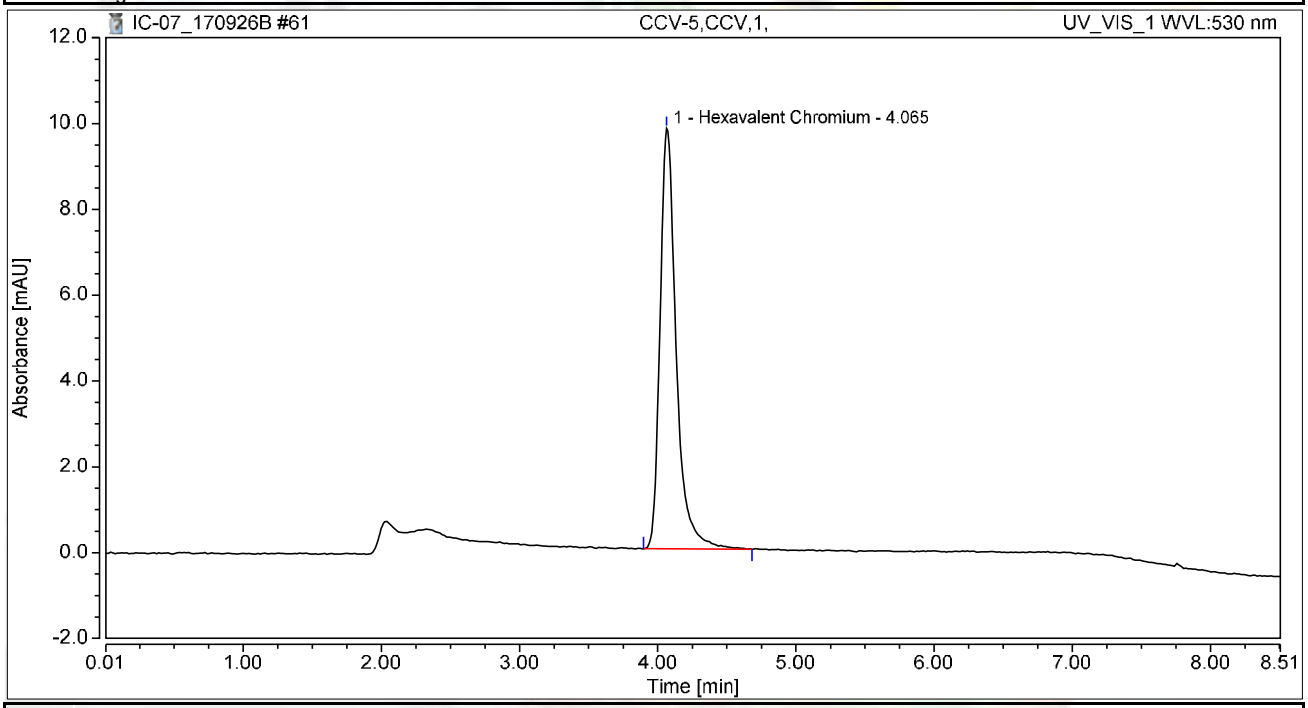
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 05:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

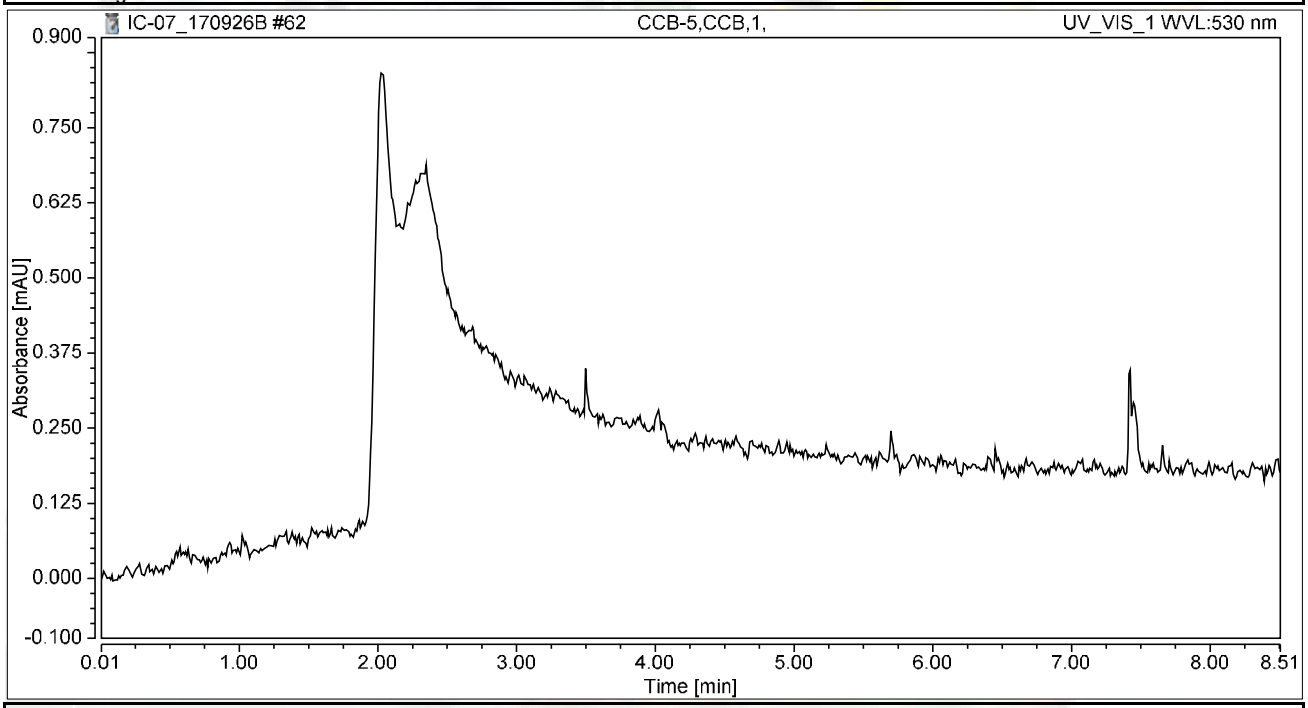
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.325	9.786	100.00	100.00	5.1042
Total:			**1.325**	**9.786**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 05:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

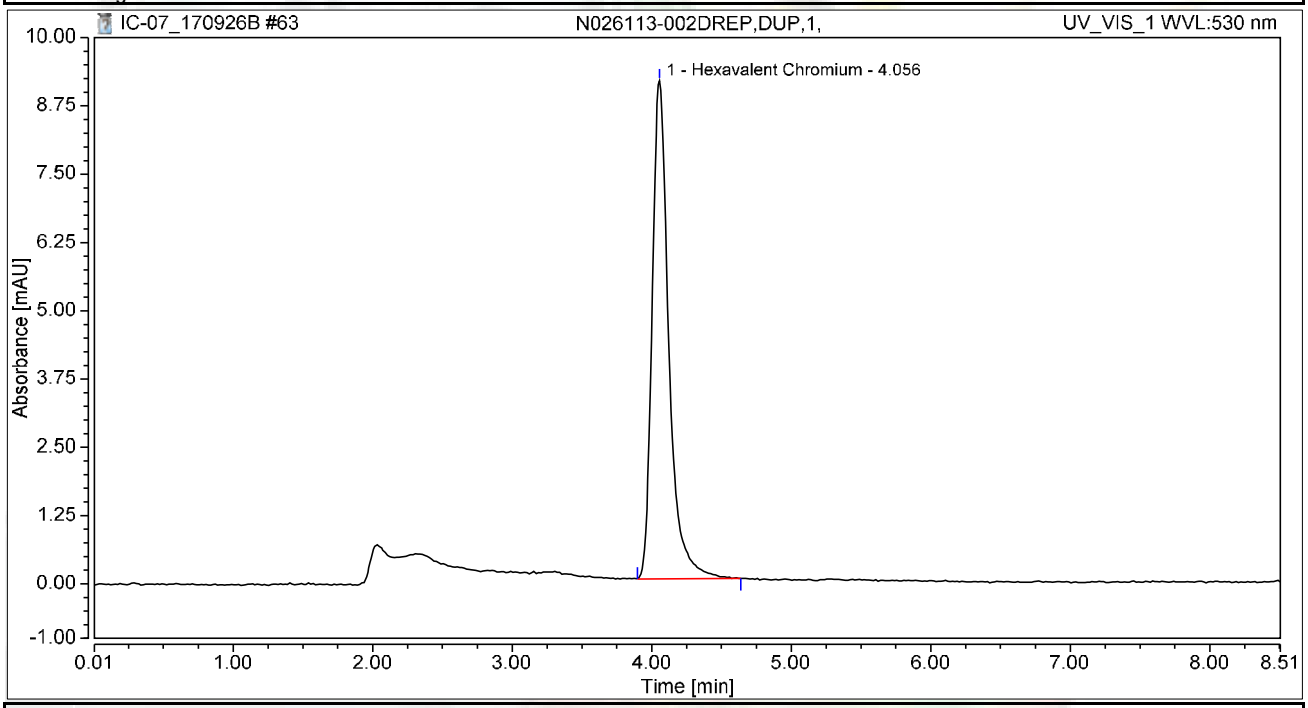
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-002DREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 05:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

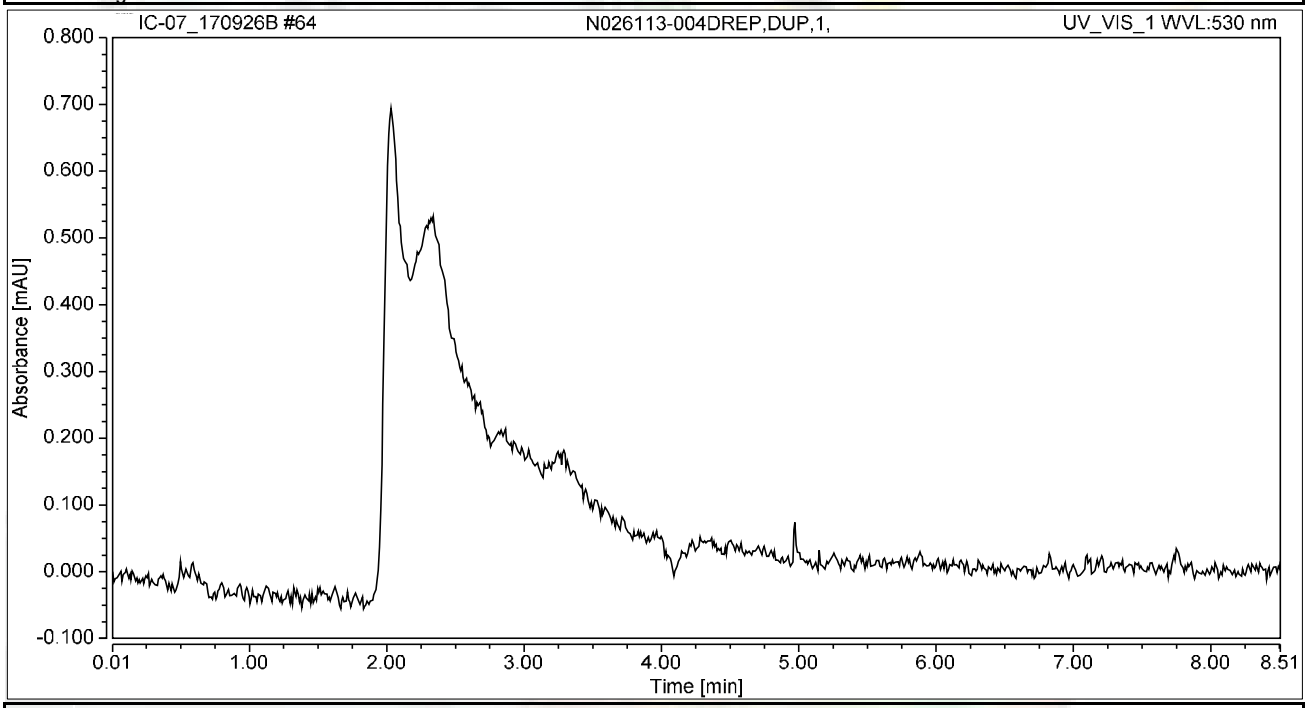
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.265	9.121	100.00	100.00	4.8740
Total:			**1.265**	**9.121**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-004DREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 05:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

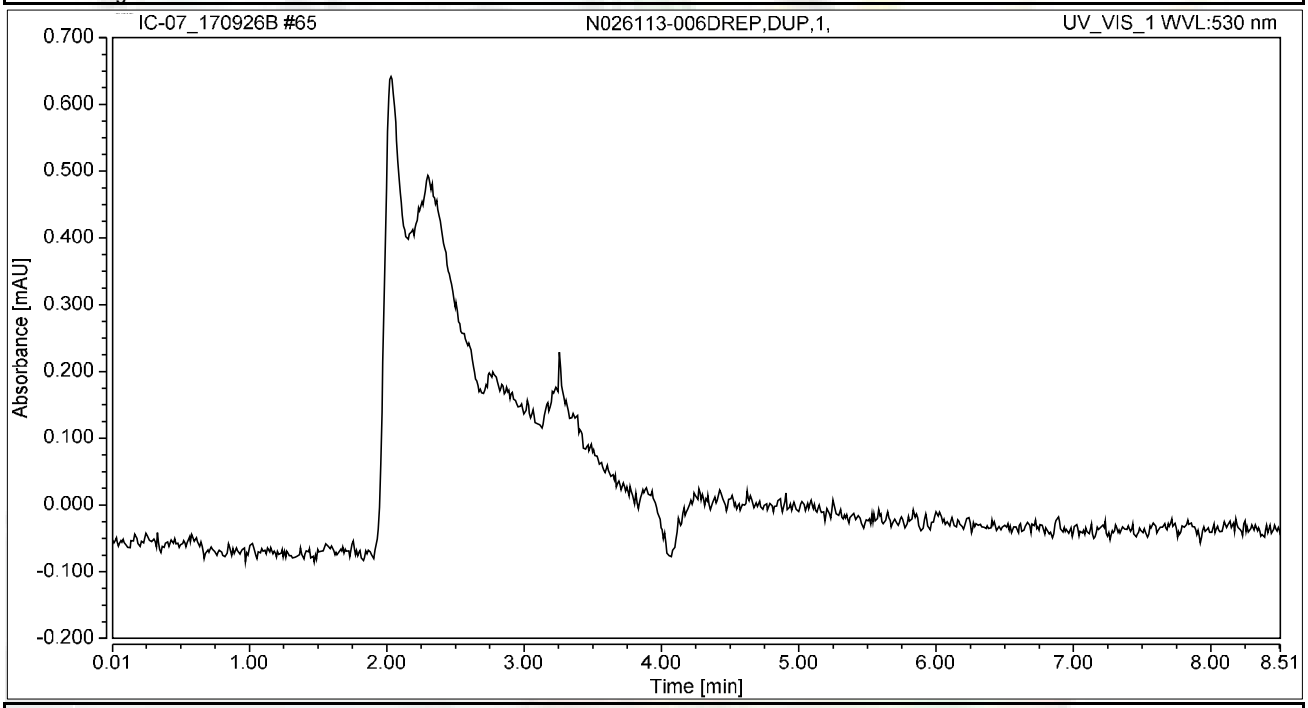
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-006DREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 05:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

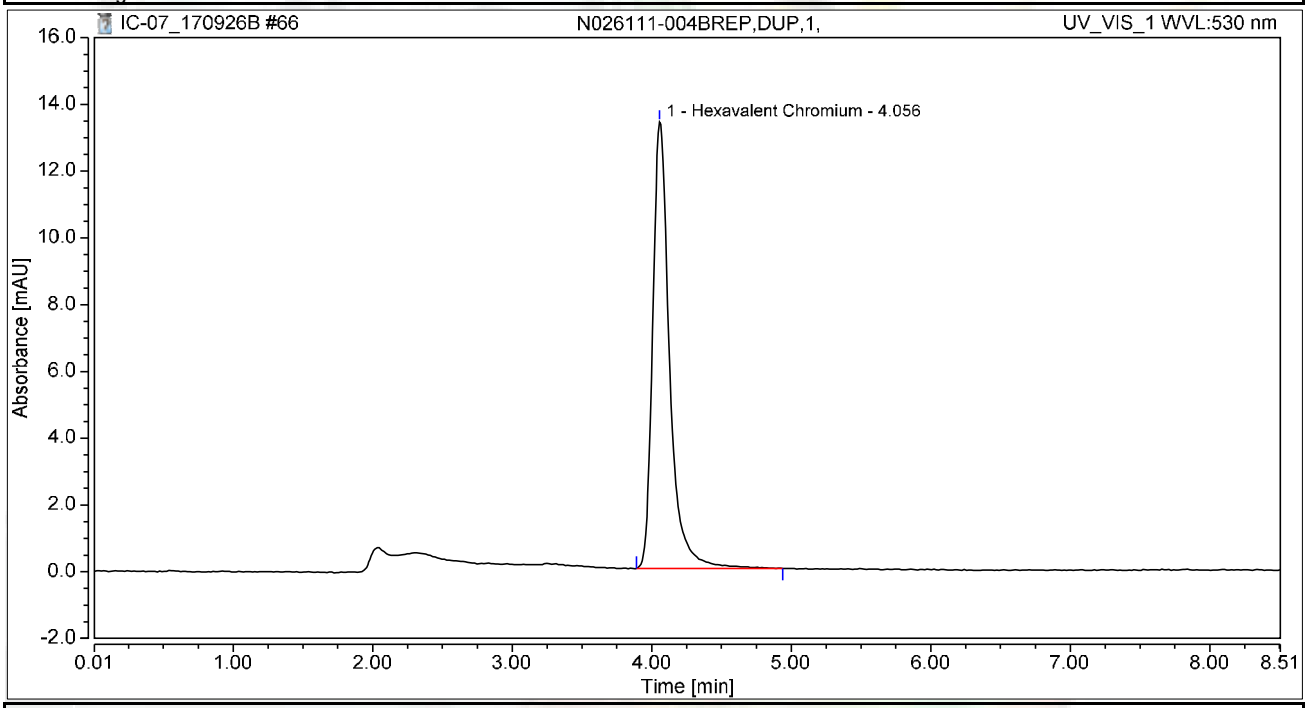
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026111-004BREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 05:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

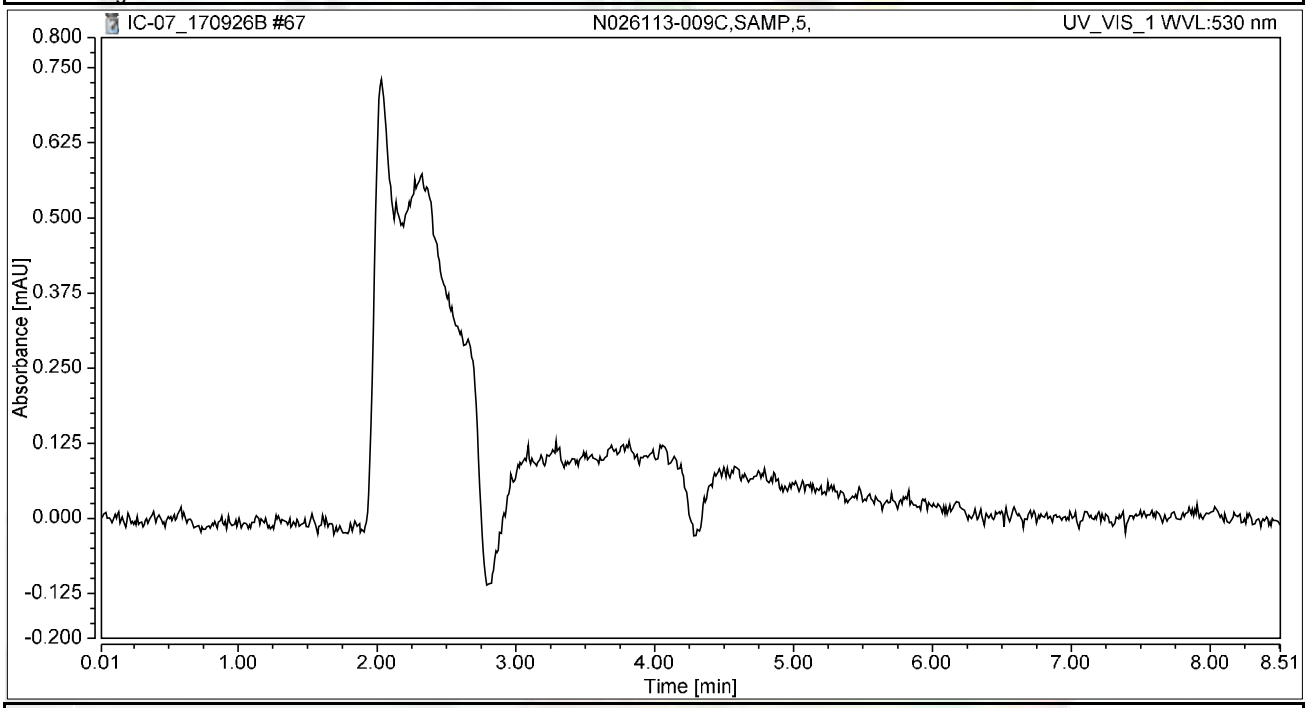
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.877	13.372	100.00	100.00	7.2307
Total:			**1.877**	**13.372**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-009C,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

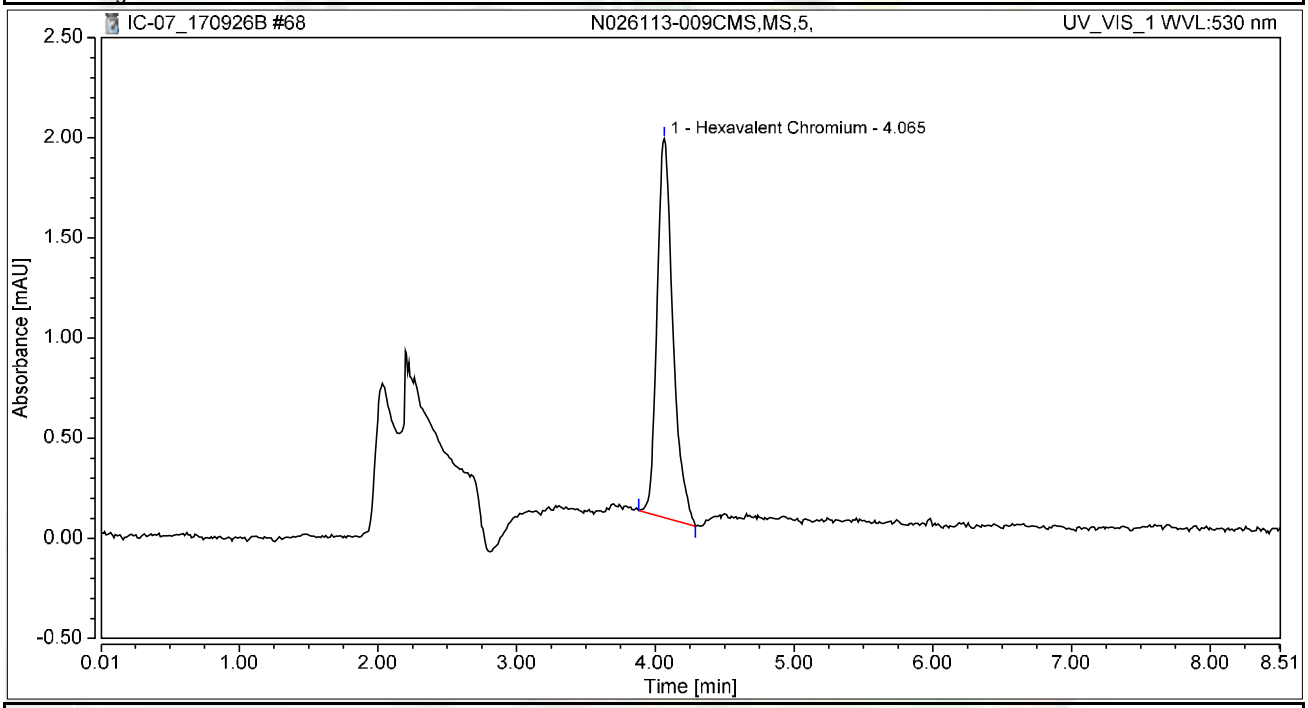
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-009CMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

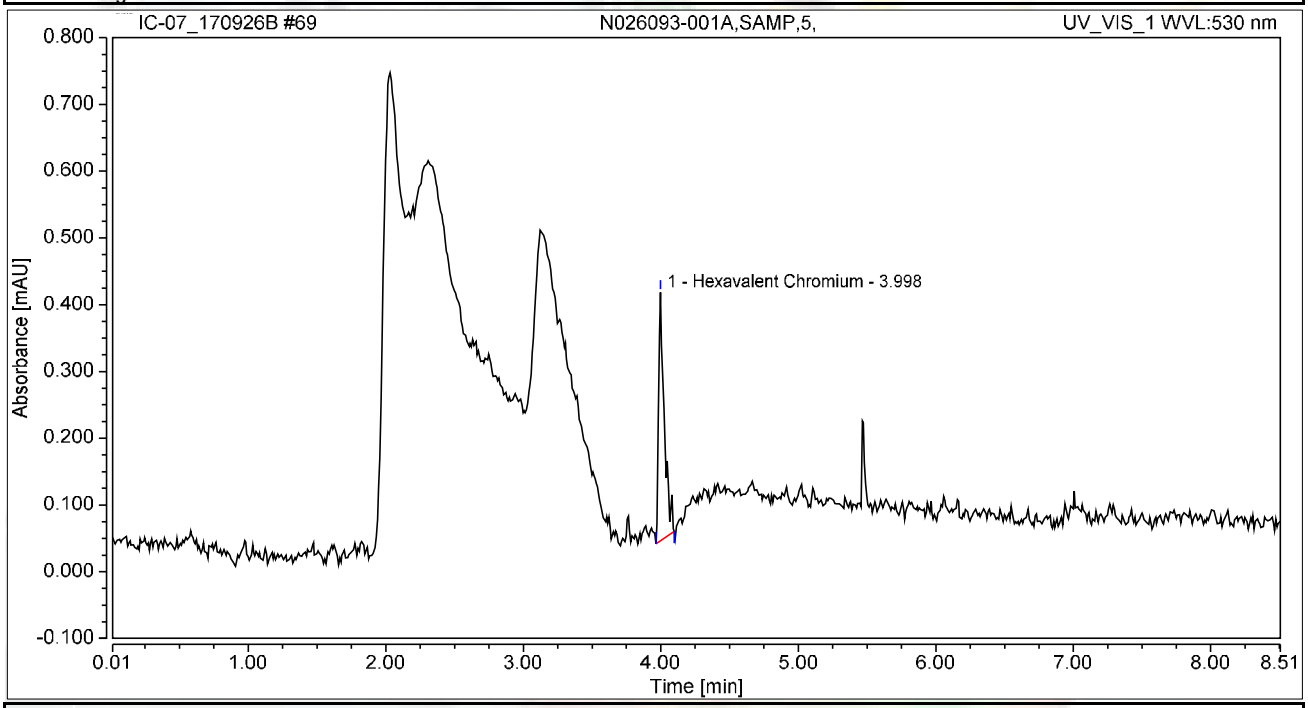
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.251	1.890	100.00	100.00	0.9669
Total:			**0.251**	**1.890**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-001A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

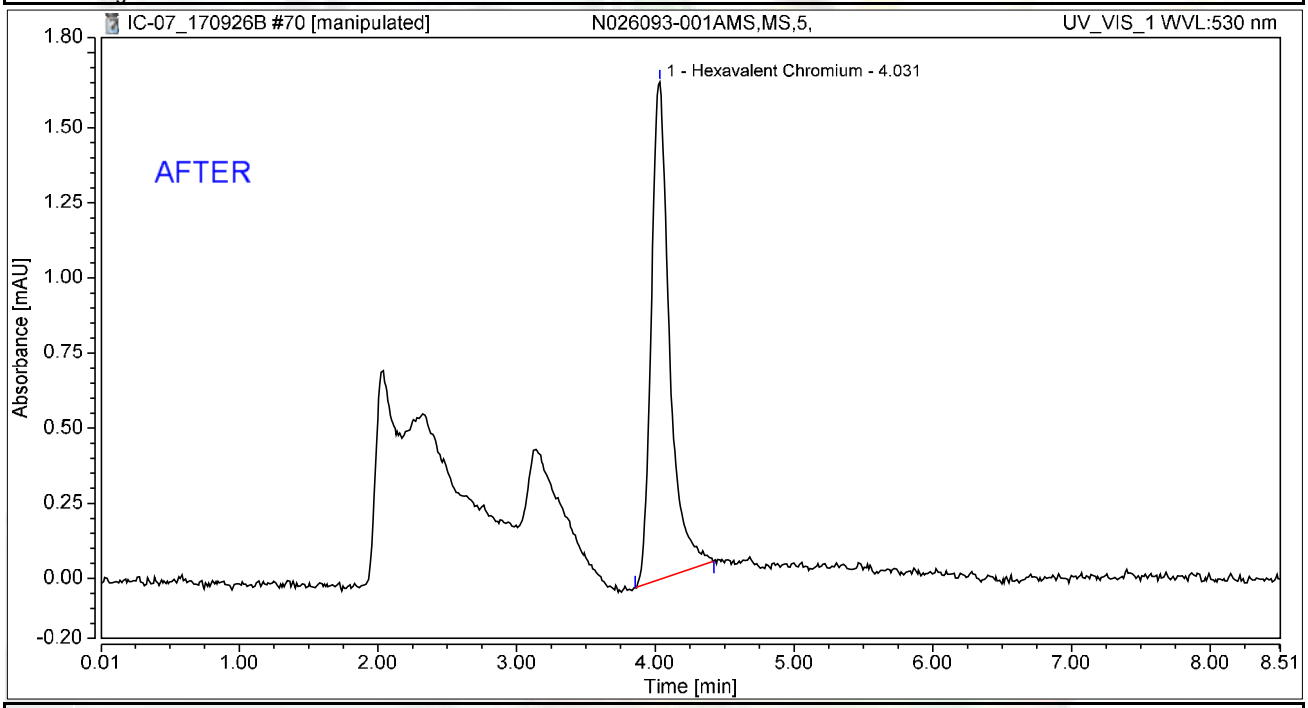
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.998	0.018	0.372	100.00	100.00	0.0682
Total:			**0.018**	**0.372**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026093-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.254	1.657	100.00	100.00	0.9785
Total:			**0.254**	**1.657**	**100.00**	**100.00**	

rba 10/01/2017

Reviewed by: Nancy 10/9/2017

My first report/Integration

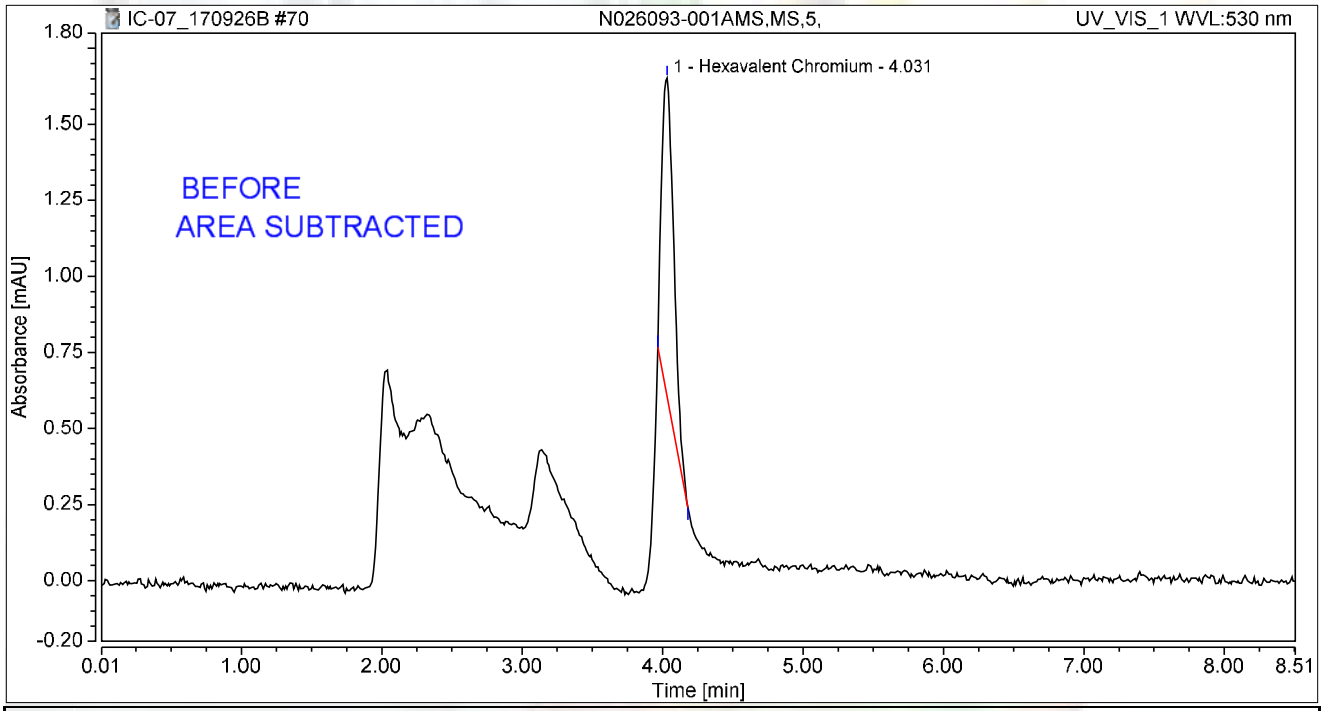
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026093-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.105	1.048	100.00	100.00	0.4033
Total:			**0.105**	**1.048**	**100.00**	**100.00**	

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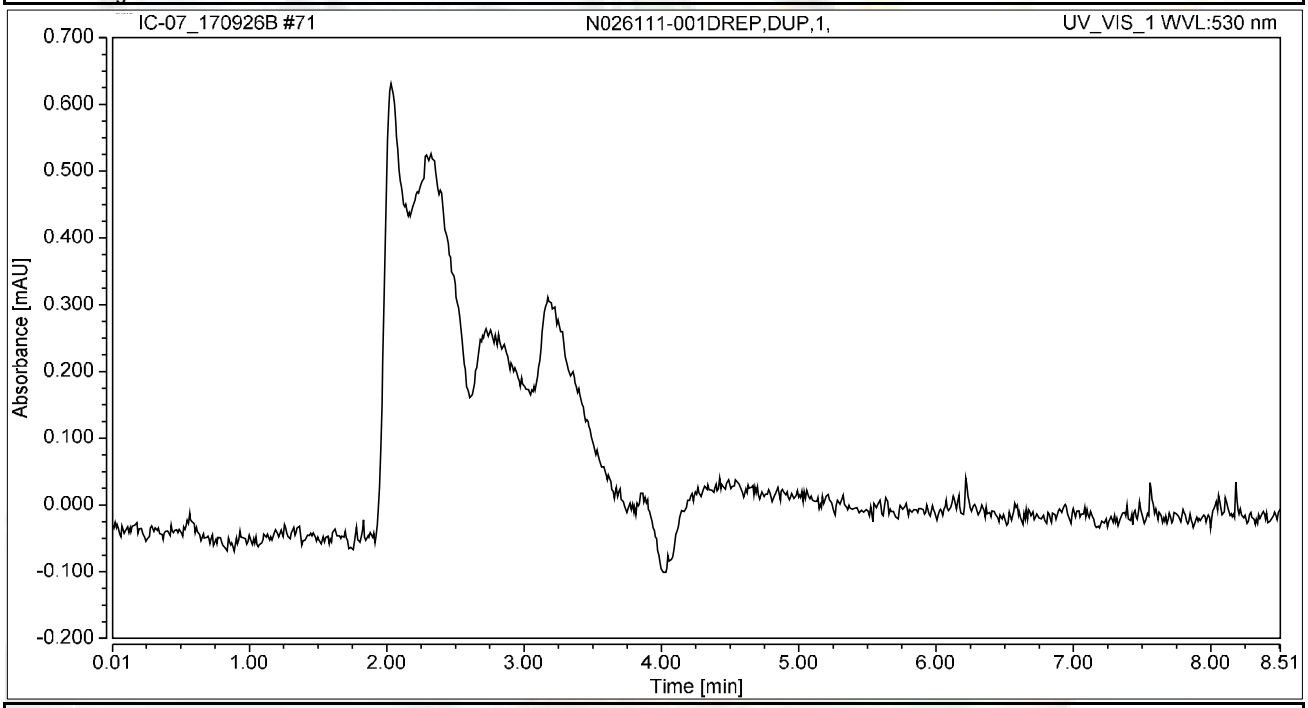
Chromatogram and Results

Injection Details

Injection Name:	**N026111-001DREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

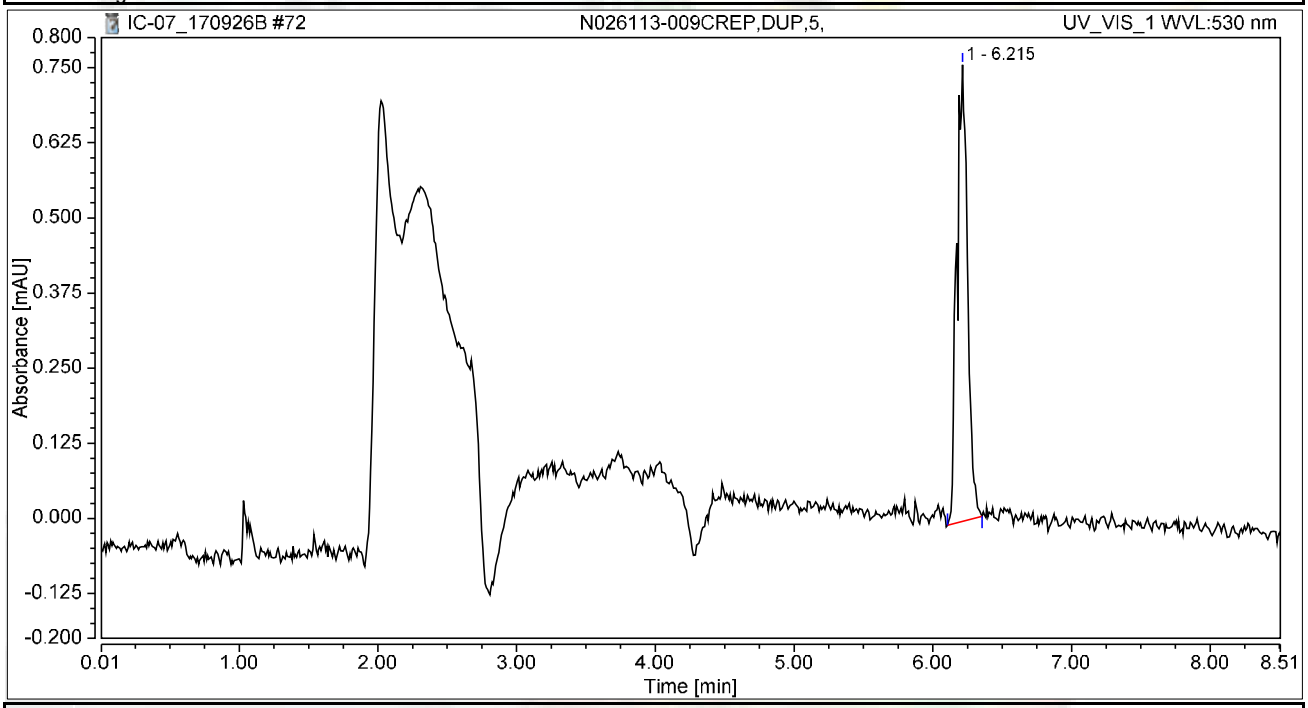
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026113-009CREP,DUP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

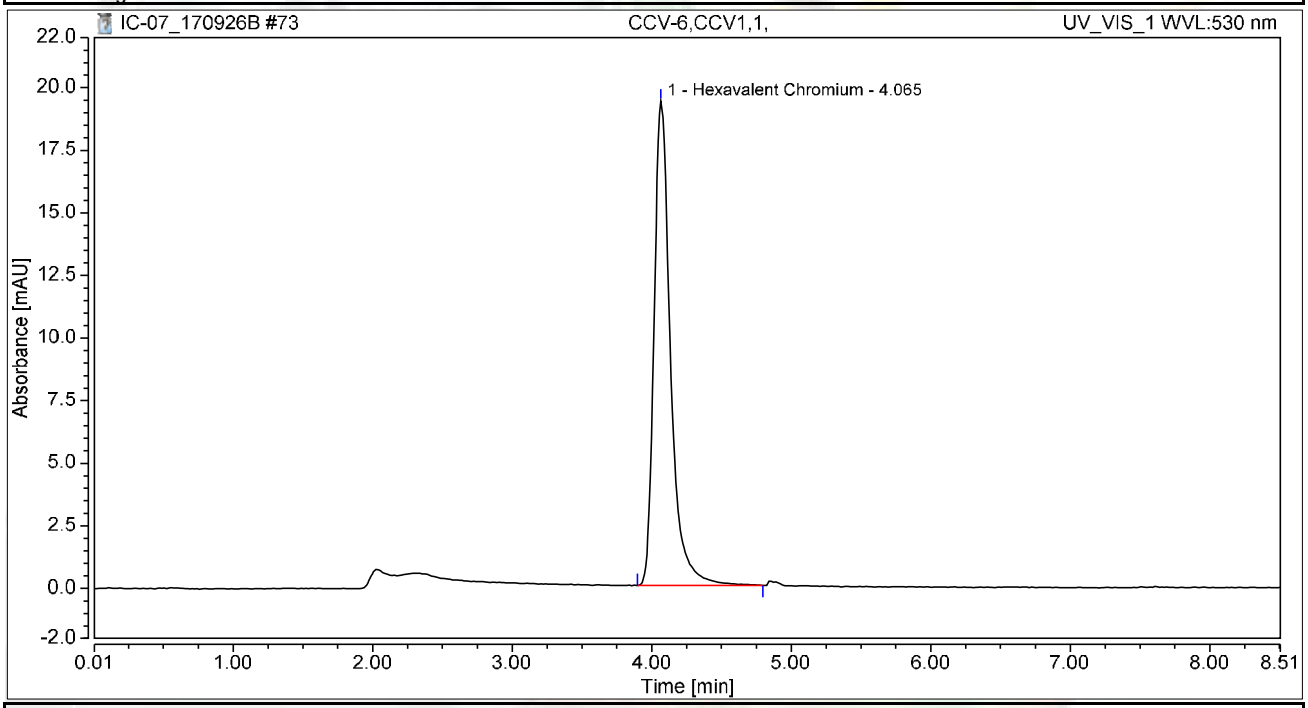
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.215	0.068	0.760	100.00	100.00	n.a.
Total:			**0.068**	**0.760**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 06:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

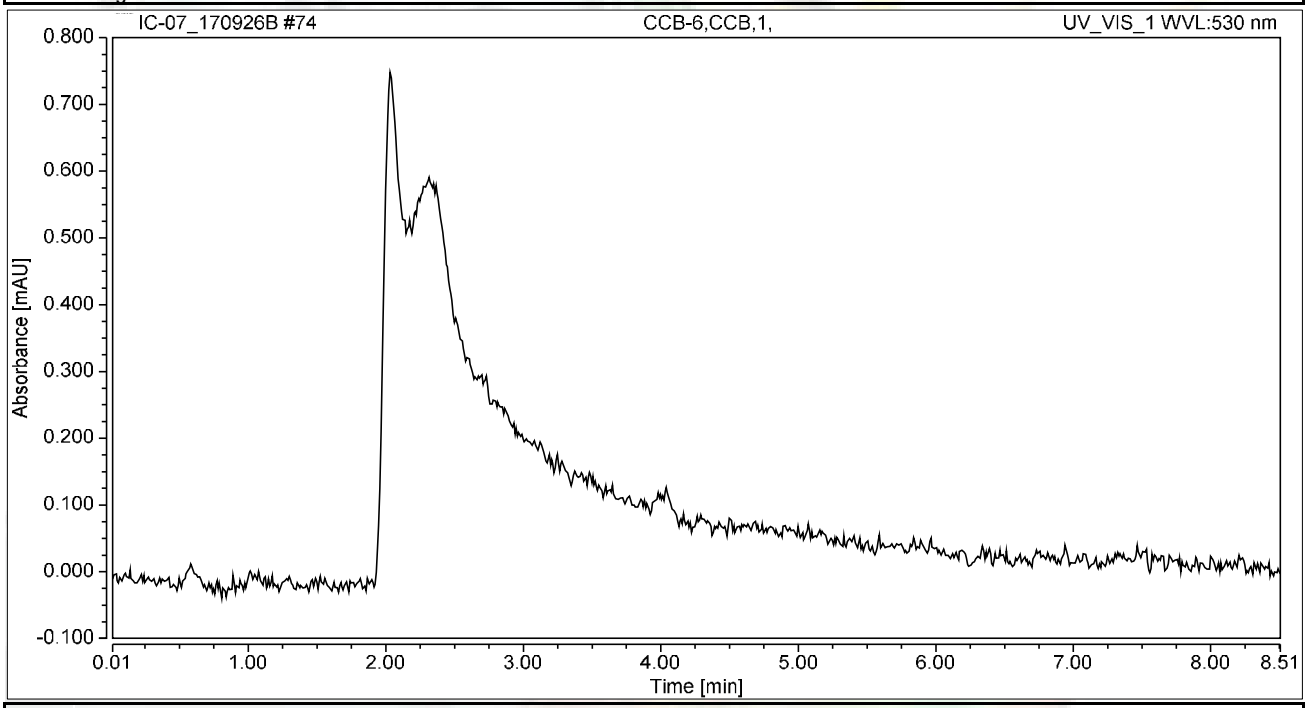
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.647	19.349	100.00	100.00	10.1981
Total:			**2.647**	**19.349**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**27/Sep/17 07:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118389 **Analyst:** QBM

ASSET #: N026093 **Date Analyzed:** 10/6/2017

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RB 10/09/17 Date: —

2nd Level Reviewer Mary 10/9/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N026093-002C** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.4342*10

= 4.342 mg/L

Reporting results in two significant figures:
Nitrate/Nitrite-N, mg/L = 4.3

RJB 10/09/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

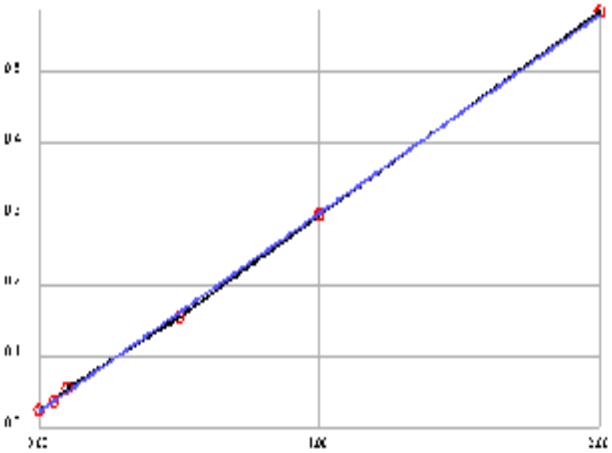
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2795x + 0.023
Correlation	.999811

Calibrant	Energy	Set	Conc
1	0.0252	0.0000	0.0078
2	0.0379	0.0500	0.0533
3	0.0549	0.1000	0.1141
4	0.1564	0.5000	0.4772
5	0.2985	1.0000	0.9855
6	0.5855	2.0000	2.0122

Notes:

2% CuSO4- R171005A
R1 Buffer- R171005B
R2 Coloring reagent- R171005C

STD 1°- ISST160817E
STD 2°- ISST170419E

10/09/17

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ICV**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.469	0.050	0.5000	0	93.7	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCV**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.485	0.050	0.5000	0	96.9	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCV**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.450	0.050	0.5000	0	90.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ICB**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCB**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.023	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCB**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-06-2017 19:23
Time end: 10-06-2017 21:40

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	21:09:38	0.0196		0.0285
2	<BLANK>	21:10:39	0.0121		0.0264
3	<CAL1>	21:11:35	0.0078	[0]	0.0252
4	<CAL2>	21:12:30	0.0533	[0.05]	0.0379
5	<CAL3>	21:13:32	0.1141	[0.1]	0.0549
6	<CAL4>	21:14:27	0.4772	[0.5]	0.1564
7	<CAL5>	21:15:22	0.9855	[1]	0.2985
8	<CAL6>	21:16:18	2.0122	[2]	0.5855
9	,BLANK,BLANK,1,	21:17:20	0.0318		0.0319
10	,ICV,ICV,1,	21:18:16	0.4686		0.1540
11	,ICB,ICB,1,	21:19:10	0.0193		0.0284
12	,MB-H2O,MBLK,1,	21:20:11	0.0143		0.0270
13	,LCS-H2O,LCS,1,	21:21:07	0.4840		0.1583
14	,N026256-001E,SAMP,1,	21:22:08	0.0261		0.0303
15	,N026256-001EDUP,DUP,1,	21:23:02	0.0178		0.0280
16	,N026256-002E,SAMP,5,	21:23:57	0.5899		0.1879
17	,N026256-002EMS,MS,5,	21:24:47	1.0349		0.3123
18	,N026256-002EMSD,MSD,5,	21:25:29	1.0864		0.3267
19	,N026093-001C,SAMP,1,	21:26:19	0.0511		0.0373
20	,N026093-002C,SAMP,10,	21:27:01	0.4342		0.1444
21	,BLANK,	21:27:44	0.0246		0.0299
22	,CCV-1,CCV,1,	21:28:32	0.4847		0.1585
23	,CCB-1,CCB,1,	21:29:15	0.0229		0.0294
24	,N026093-003C,SAMP,10,	21:30:04	0.3802		0.1293
25	,N026114-001C,SAMP,1,	21:30:46	0.0686		0.0422
26	,N026114-002C,SAMP,20,	21:31:30	0.6442		0.2031

10/09/17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N026114-003C,SAMP,10,	21:32:18	0.8574		0.2627
28	,N026114-004C,SAMP,20,	21:33:01	0.8460		0.2595
29	,N026114-005C,SAMP,5,	21:33:43	0.5072		0.1648
30	,N026114-006C,SAMP,5,	21:34:32	0.5859		0.1868
31	,N026114-007C,SAMP,5,	21:35:14	0.5380		0.1734
32	,N026114-008C,SAMP,20,	21:35:58	0.8739		0.2673
33	,BLANK,	21:36:47	0.0243		0.0298
34	,CCV-2,CCV,1,	21:37:29	0.4500		0.1488
35	,CCB-2,CCB,1,	21:38:12	0.0211		0.0289

10/09/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/6/17
Time Analyzed: 7:20 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R171005B
Color reagent: R171005C
2% Copper Sulfate: R171005A
Ammonium Hydroxide: CINV-170919B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N026093-001C		6.65							
N026093-002C		8.06							
N026093-003C		8.04							
N026114-001C		7.27							
N026114-002C		7.84							
N026114-003C		8.55							
N026114-004C		7.08							
N026114-005C		7.63							
N026114-006C		8.85							
N026114-007C		6.75							
N026114-008C		7.68							
N026256-001D		7.28							
N026256-002D		8.70							

Advanced Technology Laboratories, Inc.
Book # 1

RB 10/09/17

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63964
ASSET #: N026093

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/12/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

RSD of Se is > 15% on LLICV however,recovery is within criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 10/13/17

2nd Level Reviewer 10/13/2017 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N026093-002B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 104.025 * 5 * (25/25)

Chromium , ug/L = 520.125

Reporting results in two significant figures,

Chromium , ug/L = 520

% RSD SUMMARY

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	15.94	15	<PQL	0.11	9.61	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	5.96	15	PASS	0.52	6.36	15	PASS
Std3-5/50 ppb	ICAL	1	5.046	0.36	15	PASS	5.043	1.2	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	1.11	15	PASS	10.08	0.43	15	PASS
Std5-20/200 ppb	ICAL	1	20.28	2.15	15	PASS	20.4	0.91	15	PASS
Std6-40/400 ppb	ICAL	1	40.013	0.76	15	PASS	40.59	1.081	15	PASS
Std7-100/1000 ppb	ICAL	1	99.94	0.81	15	PASS	100.59	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	224.3	0.33	15	PASS	199.54	1.073	15	PASS
ICV	ICV	1	10.91	0.29	15	PASS	109.37	1.54	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.12	1.83	20	PASS	0.55	4.94	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.81	5.4	15	PASS	17.75	6.71	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-63964	LCS	1	11.056	0.32	15	PASS	110.22	0.67	15	PASS
N026093-001B	SAMP	1	<0.000	N/A	15	<PQL	914.92	0.54	15	PASS
N026093-001B	SAMP	5	<0.000	N/A	15	<PQL	185.83	1.39	15	PASS
N026093-001B-PS	PS	1	8.67	0.38	15	PASS	988.69	0.11	15	PASS
N026093-001B-MS	MS	1	8.79	1.087	15	PASS	986.95	0.57	15	PASS
N026093-001B-MSD	MSD	1	8.77	2.58	15	PASS	980.44	1.68	15	PASS
N026093-002B	SAMP	1	508.84	1.041	15	PASS	2.75	2.76	15	PASS
N026093-003B	SAMP	1	491.53	0.52	15	PASS	2.98	1.54	15	PASS
N026093-001B	SAMP	10	<0.000	N/A	15	<PQL	95.47	0.96	15	PASS
CCV1	CCV	1	20.27	1.19	15	PASS	20.39	2.056	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	<0.000	N/A	15	<PQL	19.97	1.89	15	PASS
N026093-001B-PS	PS	10	1.051	2.32	15	PASS	108.25	2.17	15	PASS
N026093-001B-MS	MS	10	1.04	3.26	15	PASS	107.86	0.43	15	PASS
N026093-001B-MSD	MSD	10	1.039	1.47	15	PASS	105.88	0.38	15	PASS
N026093-002B	SAMP	5	104.025	0.73	15	PASS	0.69	1.73	15	PASS
N026093-003B	SAMP	5	100.69	0.71	15	PASS	0.79	6.7	15	PASS
N026114-001B	SAMP	1	<0.000	N/A	15	<PQL	14.31	1.41	15	PASS
N026114-001B	SAMP	5	<0.000	N/A	15	<PQL	3.37	1.74	15	PASS
N026114-002B	SAMP	1	153.5	1.047	15	PASS	172.11	0.49	15	PASS
N026114-002B	SAMP	5	31.17	0.97	15	PASS	40.15	1.038	15	PASS
CCV2	CCV	1	20.5	1.4	15	PASS	20.25	1.0028	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026114-003B	SAMP	1	517.17	1.11	15	PASS	8.47	1.86	15	PASS
N026114-003B	SAMP	5	104.94	1.056	15	PASS	1.98	0.75	15	PASS
N026114-004B	SAMP	1	374.69	0.81	15	PASS	6.17	1.54	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	71.25	0.36	15	PASS	1.43	2.99	15	PASS
N026114-005B	SAMP	1	4.21	0.84	15	PASS	101.3	2.006	15	PASS
N026114-006B	SAMP	1	3.64	1.12	15	PASS	100.43	0.53	15	PASS
N026114-007B	SAMP	1	3.52	1.7	15	PASS	98.79	1.91	15	PASS
N026114-008B	SAMP	1	20823.022	0.37	15	PASS	2.5	5.11	15	PASS
N026114-008B	SAMP	250	95.45	0.87	15	PASS	0.0035	97.96	15	<PQL
N026134-001B	SAMP	1	39.38	0.6	15	PASS	336.59	1.58	15	PASS
CCV3	CCV	1	20.5	1.05	15	PASS	20.16	0.87	15	PASS
CCB3	CCB	1	0.11	3.0027	15	PASS	<0.000	N/A	15	<PQL
N026134-001B	SAMP	5	9.17	2.24	15	PASS	68.077	2.087	15	PASS
N026134-002B	SAMP	1	0.11	24.78	15	<PQL	112.74	0.65	15	PASS
N026134-002B	SAMP	5	0.058	25.33	15	<PQL	25.75	3.73	15	PASS
N026134-003B	SAMP	1	40.74	4.24	15	PASS	33.71	1.11	15	PASS
N026134-003B	SAMP	5	10.12	2.47	15	PASS	7.84	4.14	15	PASS
N026134-004B	SAMP	1	3.57	3.18	15	PASS	8.78	1.2	15	PASS
N026134-004B	SAMP	5	0.85	2.67	15	PASS	2.092	0.35	15	PASS
N026156-001B	SAMP	1	3.3	1.7	15	PASS	1.75	4.73	15	PASS
N026156-001B	SAMP	5	0.75	2.7	15	PASS	0.43	7.77	15	PASS
N026156-002B	SAMP	1	98.93	1.42	15	PASS	57.33	0.72	15	PASS
CCV4	CCV	1	20.38	2.64	15	PASS	19.85	1.64	15	PASS
CCB4	CCB	1	0.018	97.58	15	<PQL	<0.000	N/A	15	<PQL
N026156-002B	SAMP	5	23.85	1.52	15	PASS	13.77	3	15	PASS
N026156-003B	SAMP	1	97.29	0.74	15	PASS	60.006	1	15	PASS
N026156-003B	SAMP	5	22.73	3.0099	15	PASS	13.83	2.059	15	PASS
N026114-007B	SAMP	1	3.57	1.84	15	PASS	98.11	0.56	15	PASS
N026156-001B	SAMP	1	3.27	1.94	15	PASS	1.67	2.4	15	PASS
CCV5	CCV	1	20.58	0.89	15	PASS	20.34	1.084	15	PASS
CCB5	CCB	1	0.0042	116.44	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	1.06	1.22	20	PASS	0.57	2.48	20	PASS
ICSA2	ICSA	1	0.026	87.44	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.32	0.96	15	PASS	17.2	0.76	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.095	11.3	15	PASS	0.12	26.84	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	7.62	15	PASS	0.46	10.85	15	PASS
Std3-5/50 ppb	ICAL	1	4.95	1.093	15	PASS	4.79	6.98	15	PASS
Std4-10/100 ppb	ICAL	1	10.021	2.22	15	PASS	9.91	7.64	15	PASS
Std5-20/200 ppb	ICAL	1	19.72	0.78	15	PASS	19.95	6.29	15	PASS
Std6-40/400 ppb	ICAL	1	39.68	0.87	15	PASS	38.85	2.077	15	PASS
Std7-100/1000 ppb	ICAL	1	100.12	0.59	15	PASS	98.98	2.36	15	PASS
Std8-200/2000 ppb	ICAL	1	200.03	1.14	15	PASS	200.76	0.45	15	PASS
ICV	ICV	1	10.92	0.31	15	PASS	10.77	2.14	15	PASS
ICB	ICB	1	0.0078	127.53	15	<PQL	0.03	163.71	15	<PQL
LLICV	CCV1	1	0.12	15.92	20	PASS	0.56	20.35	20	Failed NR!
ICSA1	ICSA	1	0.042	17.27	15	<PQL	0.072	65.049	15	<PQL
ICSAB1	ICSAB	1	20.67	3.63	15	PASS	21.14	1.94	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	0.017	66.91	15	<PQL
LCS-63964	LCS	1	10.95	0.75	15	PASS	10.4	4.19	15	PASS
N026093-001B	SAMP	1	4.21	2.23	15	PASS	0.096	41.48	15	<PQL
N026093-001B	SAMP	5	0.88	0.3	15	PASS	0.034	18.27	15	<PQL
N026093-001B-PS	PS	1	13.57	2.43	15	PASS	9.62	2.22	15	PASS
N026093-001B-MS	MS	1	14.095	1.69	15	PASS	9.15	8.12	15	PASS
N026093-001B-MSD	MSD	1	13.86	0.7	15	PASS	9.68	4.92	15	PASS
N026093-002B	SAMP	1	1.58	1.22	15	PASS	3.37	2.51	15	PASS
N026093-003B	SAMP	1	1.55	2.85	15	PASS	3.58	7.95	15	PASS
N026093-001B	SAMP	10	0.47	1.77	15	PASS	0.025	116.0007	15	<PQL
CCV1	CCV	1	19.94	0.91	15	PASS	19.83	0.77	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	0.091	7.8	15	PASS	0.014	158.36	15	<PQL
N026093-001B-PS	PS	10	1.62	0.22	15	PASS	1.18	19.95	15	NR!
N026093-001B-MS	MS	10	1.6	0.37	15	PASS	1.17	6.67	15	PASS
N026093-001B-MSD	MSD	10	1.59	2.73	15	PASS	1.15	12.088	15	PASS
N026093-002B	SAMP	5	0.34	12.23	15	PASS	0.73	10.47	15	PASS
N026093-003B	SAMP	5	0.31	8.15	15	PASS	0.82	24.36	15	NR!
N026114-001B	SAMP	1	5.26	4.64	15	PASS	3.49	0.58	15	PASS
N026114-001B	SAMP	5	1.17	1.54	15	PASS	0.68	12.25	15	PASS
N026114-002B	SAMP	1	0.43	9.57	15	PASS	8.99	2.48	15	PASS
N026114-002B	SAMP	5	0.088	11.57	15	PASS	1.87	6.37	15	PASS
CCV2	CCV	1	20.024	0.67	15	PASS	20.27	3.32	15	PASS
CCB2	CCB	1	0.00091	603.1	15	<PQL	0.0072	399.17	15	<PQL
N026114-003B	SAMP	1	1.94	6.17	15	PASS	6.53	6.26	15	PASS
N026114-003B	SAMP	5	0.4	3.91	15	PASS	1.41	5.69	15	PASS
N026114-004B	SAMP	1	2.23	3.59	15	PASS	10.91	2.28	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	0.46	1.93	15	PASS	2.21	3.79	15	PASS
N026114-005B	SAMP	1	7.72	1.67	15	PASS	1.24	9.88	15	PASS
N026114-006B	SAMP	1	7.73	1.96	15	PASS	1.27	4.52	15	PASS
N026114-007B	SAMP	1	7.37	4.01	15	PASS	1.3	15.63	15	NR!
N026114-008B	SAMP	1	2.72	1.6	15	PASS	14.0075	2.67	15	PASS
N026114-008B	SAMP	250	<0.000	N/A	15	<PQL	0.056	59.39	15	<PQL
N026134-001B	SAMP	1	1.58	7.19	15	PASS	1.81	11.15	15	PASS
CCV3	CCV	1	19.79	0.79	15	PASS	20.78	2.14	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.018	141.96	15	<PQL
N026134-001B	SAMP	5	0.33	2.3	15	PASS	0.4	33.24	15	<PQL
N026134-002B	SAMP	1	4.28	1.37	15	PASS	0.13	33.73	15	<PQL
N026134-002B	SAMP	5	0.97	9.78	15	PASS	0.011	178.89	15	<PQL
N026134-003B	SAMP	1	1.33	4.88	15	PASS	3.58	11.5	15	PASS
N026134-003B	SAMP	5	0.29	8.66	15	PASS	0.86	10.026	15	PASS
N026134-004B	SAMP	1	14.75	2.86	15	PASS	0.27	12.9	15	PASS
N026134-004B	SAMP	5	3.28	2.18	15	PASS	0.04	78.66	15	<PQL
N026156-001B	SAMP	1	1.43	8.099	15	PASS	0.97	33.57	15	NR!
N026156-001B	SAMP	5	0.29	6.68	15	PASS	0.13	19.41	15	<PQL
N026156-002B	SAMP	1	10.82	1.22	15	PASS	1.18	6.99	15	PASS
CCV4	CCV	1	19.9	0.57	15	PASS	22.088	3.43	15	PASS
CCB4	CCB	1	0.001	272.48	15	<PQL	0.000028	48404.27	15	<PQL
N026156-002B	SAMP	5	2.4	0.92	15	PASS	0.25	3.67	15	PASS
N026156-003B	SAMP	1	10.57	1.38	15	PASS	1.046	15.07	15	NR!
N026156-003B	SAMP	5	2.42	4.4	15	PASS	0.25	15.9	15	<PQL
N026114-007B	SAMP	1	7.46	3.23	15	PASS	1.25	8.96	15	PASS
N026156-001B	SAMP	1	1.36	3.84	15	PASS	0.97	9.31	15	PASS
CCV5	CCV	1	19.79	0.86	15	PASS	19.63	5.91	15	PASS
CCB5	CCB	1	0.0056	82.96	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.11	15.33	20	PASS	0.46	19.93	20	PASS
ICSA2	ICSA	1	0.031	22.63	15	<PQL	0.076	67.48	15	<PQL
ICSAB2	ICSAB	1	20.42	2.082	15	PASS	19.097	1.015	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.089	4.4	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	1.5	15	PASS
Std3-5/50 ppb	ICAL	1	4.88	0.72	15	PASS
Std4-10/100 ppb	ICAL	1	9.79	0.52	15	PASS
Std5-20/200 ppb	ICAL	1	19.65	0.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.34	1.0084	15	PASS
Std7-100/1000 ppb	ICAL	1	99.21	0.52	15	PASS
Std8-200/2000 ppb	ICAL	1	200.57	0.14	15	PASS
ICV	ICV	1	10.92	1.33	15	PASS
ICB	ICB	1	0.058	18.18	15	<PQL
LLICV	CCV1	1	0.48	4.21	20	PASS
ICSA1	ICSA	1	0.14	7.34	15	PASS
ICSAB1	ICSAB	1	22.3	2.86	15	PASS
MB-63964	MBLK	1	0.028	15.33	15	<PQL
LCS-63964	LCS	1	10.76	0.84	15	PASS
N026093-001B	SAMP	1	61.88	1.86	15	PASS
N026093-001B	SAMP	5	12.9	0.79	15	PASS
N026093-001B-PS	PS	1	71.75	0.029	15	PASS
N026093-001B-MS	MS	1	71.71	1.25	15	PASS
N026093-001B-MSD	MSD	1	71.22	1.035	15	PASS
N026093-002B	SAMP	1	13.74	1.56	15	PASS
N026093-003B	SAMP	1	13.92	1.32	15	PASS
N026093-001B	SAMP	10	6.5	2.72	15	PASS
CCV1	CCV	1	19.62	0.9	15	PASS
CCB1	CCB	1	0.019	25.51	15	<PQL
N026093-001B	SAMP	50	1.27	2.53	15	PASS
N026093-001B-PS	PS	10	7.66	0.98	15	PASS
N026093-001B-MS	MS	10	7.54	0.81	15	PASS
N026093-001B-MSD	MSD	10	7.53	0.83	15	PASS
N026093-002B	SAMP	5	2.87	2.99	15	PASS
N026093-003B	SAMP	5	2.89	1.068	15	PASS
N026114-001B	SAMP	1	52.91	0.41	15	PASS
N026114-001B	SAMP	5	11.2	0.65	15	PASS
N026114-002B	SAMP	1	31.33	0.56	15	PASS
N026114-002B	SAMP	5	6.58	0.75	15	PASS
CCV2	CCV	1	19.37	0.77	15	PASS
CCB2	CCB	1	0.024	11.61	15	PASS
N026114-003B	SAMP	1	27.42	1.49	15	PASS
N026114-003B	SAMP	5	5.86	1.54	15	PASS
N026114-004B	SAMP	1	81.1	0.84	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	16.5	0.99	15	PASS
N026114-005B	SAMP	1	37.79	0.6	15	PASS
N026114-006B	SAMP	1	37.36	0.55	15	PASS
N026114-007B	SAMP	1	36.23	1.51	15	PASS
N026114-008B	SAMP	1	36.24	0.59	15	PASS
N026114-008B	SAMP	250	0.17	2.11	15	PASS
N026134-001B	SAMP	1	21.3	1.78	15	PASS
CCV3	CCV	1	19.36	1.64	15	PASS
CCB3	CCB	1	0.023	30.24	15	<PQL
N026134-001B	SAMP	5	4.62	2.81	15	PASS
N026134-002B	SAMP	1	40.27	1.24	15	PASS
N026134-002B	SAMP	5	8.3	3.21	15	PASS
N026134-003B	SAMP	1	30.15	2.89	15	PASS
N026134-003B	SAMP	5	6.28	3.13	15	PASS
N026134-004B	SAMP	1	73.46	1.73	15	PASS
N026134-004B	SAMP	5	15.5	2.31	15	PASS
N026156-001B	SAMP	1	15.8	0.59	15	PASS
N026156-001B	SAMP	5	3.42	0.91	15	PASS
N026156-002B	SAMP	1	72.81	0.29	15	PASS
CCV4	CCV	1	18.79	1.57	15	PASS
CCB4	CCB	1	0.03	22.21	15	<PQL
N026156-002B	SAMP	5	15.5	0.5	15	PASS
N026156-003B	SAMP	1	71.56	1.38	15	PASS
N026156-003B	SAMP	5	14.9	0.62	15	PASS
N026114-007B	SAMP	1	35.7	0.63	15	PASS
N026156-001B	SAMP	1	15.81	0.65	15	PASS
CCV5	CCV	1	19.21	0.46	15	PASS
CCB5	CCB	1	0.024	12.13	15	PASS
LLCCV1	CCV2	1	0.5	1.64	20	PASS
ICSA2	ICSA	1	0.11	4.88	15	PASS
ICSAB2	ICSAB	1	21.35	0.56	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012001.D	RINSE	RINSE	1	10/12/17 5:01 AM
A1012002.D	Cal Blank	IBLK	1	10/12/17 5:06 AM
A1012003.D	Std1-0.1/1 ppb	ICAL	1	10/12/17 5:12 AM
A1012004.D	Std2-0.5/5 ppb	ICAL	1	10/12/17 5:18 AM
A1012005.D	Std3-5/50 ppb	ICAL	1	10/12/17 5:23 AM
A1012006.D	Std4-10/100 ppb	ICAL	1	10/12/17 5:29 AM
A1012007.D	Std5-20/200 ppb	ICAL	1	10/12/17 5:34 AM
A1012008.D	Std6-40/400 ppb	ICAL	1	10/12/17 5:40 AM
A1012009.D	Std7-100/1000 ppb	ICAL	1	10/12/17 5:45 AM
A1012010.D	Std8-200/2000 ppb	ICAL	1	10/12/17 5:51 AM
A1012011.D	ICV	ICV	1	10/12/17 5:56 AM
A1012012.D	ICB	ICB	1	10/12/17 6:02 AM
A1012013.D	LLICV	CCV1	1	10/12/17 6:07 AM
A1012014.D	ICSA1	ICSA	1	10/12/17 6:13 AM
A1012015.D	ICSAB1	ICSAB	1	10/12/17 6:18 AM
A1012016.D	MB-63964	MBLK	1	10/12/17 6:24 AM
A1012017.D	LCS-63964	LCS	1	10/12/17 6:29 AM
A1012018.D	N026093-001B	SAMP	1	10/12/17 6:35 AM
A1012019.D	N026093-001B	SAMP	5	10/12/17 6:41 AM
A1012020.D	N026093-001B-PS	PS	1	10/12/17 6:46 AM
A1012021.D	N026093-001B-MS	MS	1	10/12/17 6:52 AM
A1012022.D	N026093-001B-MSD	MSD	1	10/12/17 6:57 AM
A1012023.D	N026093-002B	SAMP	1	10/12/17 7:03 AM
A1012024.D	N026093-003B	SAMP	1	10/12/17 7:08 AM
A1012025.D	N026093-001B	SAMP	10	10/12/17 7:14 AM
A1012026.D	CCV1	CCV	1	10/12/17 7:19 AM
A1012027.D	CCB1	CCB	1	10/12/17 7:25 AM
A1012028.D	N026093-001B	SAMP	50	10/12/17 7:30 AM
A1012029.D	N026093-001B-PS	PS	10	10/12/17 7:36 AM
A1012030.D	N026093-001B-MS	MS	10	10/12/17 7:41 AM
A1012031.D	N026093-001B-MSD	MSD	10	10/12/17 7:47 AM
A1012032.D	N026093-002B	SAMP	5	10/12/17 7:52 AM
A1012033.D	N026093-003B	SAMP	5	10/12/17 7:58 AM
A1012034.D	N026114-001B	SAMP	1	10/12/17 8:03 AM
A1012035.D	N026114-001B	SAMP	5	10/12/17 8:09 AM
A1012036.D	N026114-002B	SAMP	1	10/12/17 8:15 AM
A1012037.D	N026114-002B	SAMP	5	10/12/17 8:20 AM
A1012038.D	CCV2	CCV	1	10/12/17 8:26 AM
A1012039.D	CCB2	CCB	1	10/12/17 8:32 AM
A1012040.D	N026114-003B	SAMP	1	10/12/17 8:37 AM
A1012041.D	N026114-003B	SAMP	5	10/12/17 8:43 AM
A1012042.D	N026114-004B	SAMP	1	10/12/17 8:48 AM

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012043.D	N026114-004B	SAMP	5	10/12/17 8:54 AM
A1012044.D	N026114-005B	SAMP	1	10/12/17 8:59 AM
A1012045.D	N026114-006B	SAMP	1	10/12/17 9:05 AM
A1012046.D	N026114-007B	SAMP	1	10/12/17 9:10 AM
A1012047.D	N026114-008B	SAMP	1	10/12/17 9:16 AM
A1012048.D	N026114-008B	SAMP	250	10/12/17 9:21 AM
A1012049.D	N026134-001B	SAMP	1	10/12/17 9:27 AM
A1012050.D	CCV3	CCV	1	10/12/17 9:32 AM
A1012051.D	CCB3	CCB	1	10/12/17 9:38 AM
A1012052.D	N026134-001B	SAMP	5	10/12/17 9:43 AM
A1012053.D	N026134-002B	SAMP	1	10/12/17 9:49 AM
A1012054.D	N026134-002B	SAMP	5	10/12/17 9:55 AM
A1012055.D	N026134-003B	SAMP	1	10/12/17 10:00 AM
A1012056.D	N026134-003B	SAMP	5	10/12/17 10:06 AM
A1012057.D	N026134-004B	SAMP	1	10/12/17 10:11 AM
A1012058.D	N026134-004B	SAMP	5	10/12/17 10:17 AM
A1012059.D	N026156-001B	SAMP	1	10/12/17 10:22 AM
A1012060.D	N026156-001B	SAMP	5	10/12/17 10:28 AM
A1012061.D	N026156-002B	SAMP	1	10/12/17 10:33 AM
A1012062.D	CCV4	CCV	1	10/12/17 10:39 AM
A1012063.D	CCB4	CCB	1	10/12/17 10:44 AM
A1012064.D	N026156-002B	SAMP	5	10/12/17 10:50 AM
A1012065.D	N026156-003B	SAMP	1	10/12/17 10:55 AM
A1012066.D	N026156-003B	SAMP	5	10/12/17 11:01 AM
A1012067.D	N026114-007B	SAMP	1	10/12/17 11:07 AM
A1012068.D	N026156-001B	SAMP	1	10/12/17 11:12 AM
A1012069.D	CCV5	CCV	1	10/12/17 11:18 AM
A1012070.D	CCB5	CCB	1	10/12/17 11:23 AM
A1012071.D	LLCCV1	CCV2	1	10/12/17 11:29 AM
A1012072.D	ICSA2	ICSA	1	10/12/17 11:35 AM
A1012073.D	ICSAB2	ICSAB	1	10/12/17 11:40 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**
Prep Batch **63964** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 10/13/2017
Initials/ Date: CEI
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63964	Aqueous		25	☐	0	0	25	1.000		
MB-63964	Aqueous		25	☐	0	0	25	1.000		
N026093-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-007B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**
Prep Batch **63964** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 10/13/2017
Initials/ Date: CEI
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N026114-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-003B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2017 02:47:04 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	165511.00	0.00	
24 Mg	499304.00	0.00	
25 Mg	65337.40	0.00	
26 Mg	75826.70	0.00	
59 Co	653726.00	0.00	
115 In	999173.00	0.00	
206 Pb	295094.00	0.00	
207 Pb	259020.00	0.00	
208 Pb	634328.00	0.00	

RSD (%)

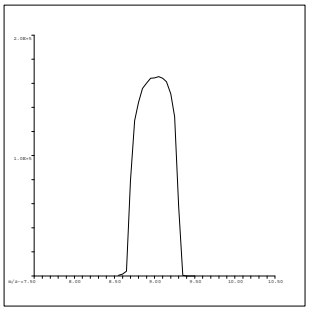
Element	Actual	Required	Flag
9 Be	1.01	5.00	
24 Mg	0.65	5.00	
25 Mg	2.02	5.00	
26 Mg	1.03	5.00	
59 Co	0.71	5.00	
115 In	0.59	5.00	
206 Pb	0.73	5.00	
207 Pb	1.06	5.00	
208 Pb	0.61	5.00	

Ion Ratio

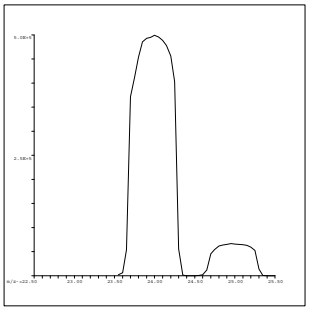
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

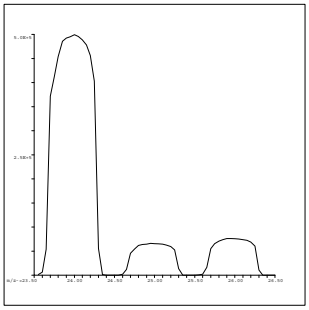
Element	Actual	Required	Flag



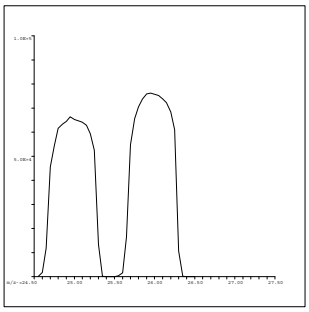
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



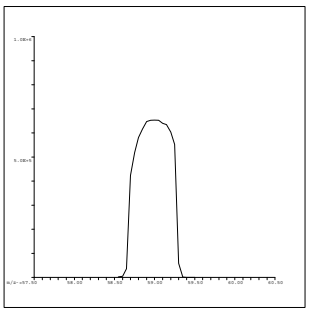
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



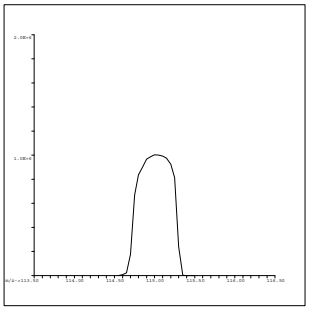
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



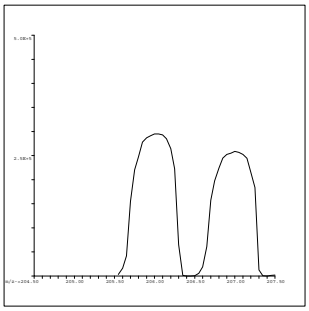
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



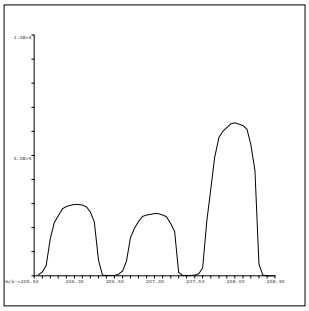
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



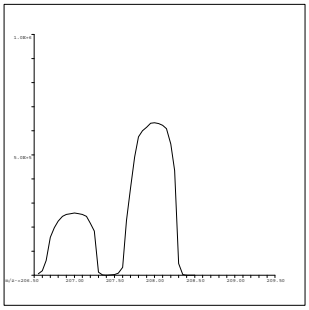
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 171012A

Instrument ID: ICPMS-02

Analyte	Data File	A1012002.D	A1012003.D	A1012004.D	A1012005.D	A1012006.D	A1012007.D	A1012008.D	A1012009.D	A1012010.D	
	Acq. Date-Time	10/12/2017 05:06 AM	10/12/2017 05:12 AM	10/12/2017 05:18 AM	10/12/2017 05:23 AM	10/12/2017 05:29 AM	10/12/2017 05:34 AM	10/12/2017 05:40 AM	10/12/2017 05:45 AM	10/12/2017 05:51 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	108669.5		119532.6	119350.5	119064.2	116748.3	117079.1	114999.5	114629.2	
55 Mn [2]	CPS	146		2606.6	23833.4	47355.5	93813.5	187032.6	454984	899628.9	1.0000
52 Cr [2]	CPS	845.4		5148.5	45335.4	88579.8	175407.8	346343	848306.7	1896775.6	1.0000
72 Ge (ISTD) [1]	CPS	97228.3		98659.8	98939.5	97209.3	94628.7	96625.8	93800.7	91903	
78 Se [1]	CPS	6.7		166.7	1686.8	3427.2	6700.6	13323.8	32941	65460.7	1.0000
72 Ge (ISTD) [2]	CPS	75383.9	83851.2	84051.4	83514.8	82923.2	82408.5	82254.5	79419.3	79391.6	
75 As [2]	CPS	27.1	124	496	4919	9849.3	19231	38602.5	93998.9	187681.1	1.0000
103 Rh (ISTD) [2]	CPS	2243050.3		2483146.6	2511454.4	2474294.3	2454264.4	2482662.3	2384160	2381162.9	
95 Mo [2]	CPS	46.7		2621.4	27234.1	53833.5	107080.9	216771.2	525013.3	1060017.1	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.925	0.10	10.00	0	109	90	110				
Manganese	109.366	0.50	100.0	0	109	90	110				
Molybdenum	10.916	0.50	10.00	0	109	90	110				
Selenium	10.769	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.117	0.10	0.1000	0	117	80	120				
Manganese	0.554	0.50	0.5000	0	111	80	120				
Molybdenum	0.483	0.50	0.5000	0	96.6	80	120				
Selenium	0.556	0.50	0.5000	0	111	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.944	0.10	20.00	0	99.7	90	110				
Manganese	20.386	0.50	20.00	0	102	90	110				
Molybdenum	19.622	0.50	20.00	0	98.1	90	110				
Selenium	19.826	0.50	20.00	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.024	0.10	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	CCV2	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118492
Client ID:	CCV	Batch ID:	R118492	TestNo:	EPA 6020			Analysis Date:	10/12/2017	SeqNo:	2789646

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.246	0.50	20.00	0	101	90	110				
Molybdenum	19.365	0.50	20.00	0	96.8	90	110				
Selenium	20.266	0.50	20.00	0	101	90	110				

Sample ID	CCV3	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118492
Client ID:	CCV	Batch ID:	R118492	TestNo:	EPA 6020			Analysis Date:	10/12/2017	SeqNo:	2789658

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.793	0.10	20.00	0	99.0	90	110				
Manganese	20.157	0.50	20.00	0	101	90	110				
Molybdenum	19.357	0.50	20.00	0	96.8	90	110				
Selenium	20.781	0.50	20.00	0	104	90	110				

Sample ID	CCV4	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118492
Client ID:	CCV	Batch ID:	R118492	TestNo:	EPA 6020			Analysis Date:	10/12/2017	SeqNo:	2789670

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.901	0.10	20.00	0	99.5	90	110				
Manganese	19.855	0.50	20.00	0	99.3	90	110				
Molybdenum	18.795	0.50	20.00	0	94.0	90	110				
Selenium	22.088	0.50	20.00	0	110	90	110				S

Sample ID	CCV5	SampType:	CCV	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118492
Client ID:	CCV	Batch ID:	R118492	TestNo:	EPA 6020			Analysis Date:	10/12/2017	SeqNo:	2789677

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.787	0.10	20.00	0	98.9	90	110				
Manganese	20.336	0.50	20.00	0	102	90	110				
Molybdenum	19.210	0.50	20.00	0	96.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Se on CCV4 is within +/- 10%.

10/13/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.627	0.50	20.00	0	98.1	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.110	0.10	0.1000	0	110	70	130				
Manganese	0.572	0.50	0.5000	0	114	70	130				
Molybdenum	0.503	0.50	0.5000	0	101	70	130				
Selenium	0.461	0.50	0.5000	0	92.3	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.906	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.125	1.0	1.000	0	112	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.275	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.504	1.0	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.500	1.0	20.00	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.376	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.579	1.0	20.00	0	103	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.060	1.0	1.000	0	106	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.058	0.50									
Selenium	0.030	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.111	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.042	0.10									
Manganese	ND	0.50									
Molybdenum	0.142	0.50									
Selenium	0.072	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.672	0.10	20.00	0	103	80	120				
Manganese	17.745	0.50	20.00	0	88.7	80	120				
Molybdenum	22.300	0.50	20.00	0	111	80	120				
Selenium	21.138	0.50	20.00	0	106	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.031	0.10									
Manganese	ND	0.50									
Molybdenum	0.113	0.50									
Selenium	0.076	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.424	0.10	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.202	0.50	20.00	0	86.0	80	120				
Molybdenum	21.354	0.50	20.00	0	107	80	120				
Selenium	19.097	0.50	20.00	0	95.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.814	1.0	20.00	0	99.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.026	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.315	1.0	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	108669.5	108669.5	100	PASS	70-125	75383.9	75383.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	119552.6	108669.5	110.02	PASS	70-125	83851.2	75383.9	111.23	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119532.6	108669.5	110	PASS	70-125	84051.4	75383.9	111.5	PASS	70-125
Std3-5/50 ppb	ICAL	1	119350.5	108669.5	109.83	PASS	70-125	83514.8	75383.9	110.79	PASS	70-125
Std4-10/100 ppb	ICAL	1	119064.2	108669.5	109.57	PASS	70-125	82923.2	75383.9	110	PASS	70-125
Std5-20/200 ppb	ICAL	1	116748.3	108669.5	107.43	PASS	70-125	82408.5	75383.9	109.32	PASS	70-125
Std6-40/400 ppb	ICAL	1	117079.1	108669.5	107.74	PASS	70-125	82254.5	75383.9	109.11	PASS	70-125
Std7-100/1000 ppb	ICAL	1	114999.5	108669.5	105.83	PASS	70-125	79419.3	75383.9	105.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	114629.2	108669.5	105.48	PASS	70-125	79391.6	75383.9	105.32	PASS	70-125
ICV	ICV	1	103654.5	108669.5	95.39	PASS	70-125	74276.2	75383.9	98.53	PASS	70-125
ICB	ICB	1	106373.2	108669.5	97.89	PASS	70-125	76222.1	75383.9	101.11	PASS	70-125
LLICV	CCV1	1	107263.2	108669.5	98.71	PASS	70-125	78829.9	75383.9	104.57	PASS	70-125
ICSA1	ICSA	1	119463.8	108669.5	109.93	PASS	70-125	83102.1	75383.9	110.24	PASS	70-125
ICSAB1	ICSAB	1	110208.5	108669.5	101.42	PASS	70-125	74165.3	75383.9	98.38	PASS	70-125
MB-63964	MBLK	1	116354.9	108669.5	107.07	PASS	70-125	81787.8	75383.9	108.5	PASS	70-125
LCS-63964	LCS	1	105476.7	108669.5	97.062	PASS	70-125	75647	75383.9	100.35	PASS	70-125
N026093-001B	SAMP	1	100828.7	108669.5	92.78	PASS	70-125	63981.8	75383.9	84.87	PASS	70-125
N026093-001B	SAMP	5	107726.9	108669.5	99.13	PASS	70-125	74579.1	75383.9	98.93	PASS	70-125
N026093-001B-PS	PS	1	107359.7	108669.5	98.79	PASS	70-125	68070.5	75383.9	90.3	PASS	70-125
N026093-001B-MS	MS	1	107438.7	108669.5	98.87	PASS	70-125	67550.7	75383.9	89.61	PASS	70-125
N026093-001B-MSD	MSD	1	105473.6	108669.5	97.059	PASS	70-125	66107.4	75383.9	87.69	PASS	70-125
N026093-002B	SAMP	1	112622.6	108669.5	103.64	PASS	70-125	73821.1	75383.9	97.93	PASS	70-125
N026093-003B	SAMP	1	114742.9	108669.5	105.59	PASS	70-125	74430.9	75383.9	98.74	PASS	70-125
N026093-001B	SAMP	10	109413.5	108669.5	100.68	PASS	70-125	75655.2	75383.9	100.36	PASS	70-125
CCV1	CCV	1	122438.7	108669.5	112.67	PASS	70-125	85406.1	75383.9	113.29	PASS	70-125
CCB1	CCB	1	113523.3	108669.5	104.47	PASS	70-125	78979.9	75383.9	104.77	PASS	70-125
N026093-001B	SAMP	50	107327.3	108669.5	98.76	PASS	70-125	74707.5	75383.9	99.1	PASS	70-125
N026093-001B-PS	PS	10	103502.2	108669.5	95.24	PASS	70-125	72181.9	75383.9	95.75	PASS	70-125
N026093-001B-MS	MS	10	103904.5	108669.5	95.62	PASS	70-125	72219.5	75383.9	95.8	PASS	70-125
N026093-001B-MSD	MSD	10	104678.1	108669.5	96.33	PASS	70-125	72740.9	75383.9	96.49	PASS	70-125
N026093-002B	SAMP	5	104216.7	108669.5	95.9	PASS	70-125	73376.9	75383.9	97.34	PASS	70-125
N026093-003B	SAMP	5	103398.4	108669.5	95.15	PASS	70-125	73736.1	75383.9	97.81	PASS	70-125
N026114-001B	SAMP	1	96550.6	108669.5	88.85	PASS	70-125	61313.9	75383.9	81.34	PASS	70-125
N026114-001B	SAMP	5	105870.5	108669.5	97.42	PASS	70-125	71330	75383.9	94.62	PASS	70-125
N026114-002B	SAMP	1	114657.9	108669.5	105.51	PASS	70-125	77021.2	75383.9	102.17	PASS	70-125
N026114-002B	SAMP	5	107767.6	108669.5	99.17	PASS	70-125	75851.7	75383.9	100.62	PASS	70-125
CCV2	CCV	1	116255.6	108669.5	106.98	PASS	70-125	81002.8	75383.9	107.45	PASS	70-125
CCB2	CCB	1	107541.2	108669.5	98.96	PASS	70-125	76206.4	75383.9	101.09	PASS	70-125
N026114-003B	SAMP	1	101677.9	108669.5	93.57	PASS	70-125	66649.4	75383.9	88.41	PASS	70-125
N026114-003B	SAMP	5	104718.7	108669.5	96.36	PASS	70-125	72688.9	75383.9	96.42	PASS	70-125
N026114-004B	SAMP	1	111340.7	108669.5	102.46	PASS	70-125	76384.9	75383.9	101.33	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	108146.7	108669.5	99.52	PASS	70-125	75407.1	75383.9	100.03	PASS	70-125
N026114-005B	SAMP	1	114328.4	108669.5	105.21	PASS	70-125	78548.7	75383.9	104.2	PASS	70-125
N026114-006B	SAMP	1	111068.7	108669.5	102.21	PASS	70-125	76485.5	75383.9	101.46	PASS	70-125
N026114-007B	SAMP	1	111171.2	108669.5	102.3	PASS	70-125	76291.8	75383.9	101.2	PASS	70-125
N026114-008B	SAMP	1	107032.9	108669.5	98.49	PASS	70-125	72180.6	75383.9	95.75	PASS	70-125
N026114-008B	SAMP	250	105325.5	108669.5	96.92	PASS	70-125	76011.1	75383.9	100.83	PASS	70-125
N026134-001B	SAMP	1	102053	108669.5	93.91	PASS	70-125	67762.7	75383.9	89.89	PASS	70-125
CCV3	CCV	1	114484.2	108669.5	105.35	PASS	70-125	80016.9	75383.9	106.15	PASS	70-125
CCB3	CCB	1	105695.7	108669.5	97.26	PASS	70-125	74672.9	75383.9	99.057	PASS	70-125
N026134-001B	SAMP	5	96036.9	108669.5	88.38	PASS	70-125	68026.3	75383.9	90.24	PASS	70-125
N026134-002B	SAMP	1	96891.7	108669.5	89.16	PASS	70-125	64326.6	75383.9	85.33	PASS	70-125
N026134-002B	SAMP	5	100894.5	108669.5	92.85	PASS	70-125	68618.9	75383.9	91.026	PASS	70-125
N026134-003B	SAMP	1	101029.7	108669.5	92.97	PASS	70-125	62556.5	75383.9	82.98	PASS	70-125
N026134-003B	SAMP	5	97045.9	108669.5	89.3	PASS	70-125	67117.8	75383.9	89.035	PASS	70-125
N026134-004B	SAMP	1	90800.8	108669.5	83.56	PASS	70-125	55923.9	75383.9	74.19	PASS	70-125
N026134-004B	SAMP	5	97931.5	108669.5	90.12	PASS	70-125	68227.2	75383.9	90.51	PASS	70-125
N026156-001B	SAMP	1	104288.3	108669.5	95.97	PASS	70-125	69617.7	75383.9	92.35	PASS	70-125
N026156-001B	SAMP	5	104071	108669.5	95.77	PASS	70-125	73014.1	75383.9	96.86	PASS	70-125
N026156-002B	SAMP	1	93060	108669.5	85.64	PASS	70-125	59239.9	75383.9	78.58	PASS	70-125
CCV4	CCV	1	114261.8	108669.5	105.15	PASS	70-125	80191.4	75383.9	106.38	PASS	70-125
CCB4	CCB	1	106708.3	108669.5	98.2	PASS	70-125	75748.8	75383.9	100.48	PASS	70-125
N026156-002B	SAMP	5	94655.8	108669.5	87.1	PASS	70-125	65986.8	75383.9	87.53	PASS	70-125
N026156-003B	SAMP	1	92374.8	108669.5	85.005	PASS	70-125	59746.2	75383.9	79.26	PASS	70-125
N026156-003B	SAMP	5	97973.4	108669.5	90.16	PASS	70-125	68021.6	75383.9	90.23	PASS	70-125
N026114-007B	SAMP	1	109267.9	108669.5	100.55	PASS	70-125	75495.4	75383.9	100.15	PASS	70-125
N026156-001B	SAMP	1	103436.3	108669.5	95.18	PASS	70-125	69811.4	75383.9	92.61	PASS	70-125
CCV5	CCV	1	114182.1	108669.5	105.07	PASS	70-125	81458.1	75383.9	108.06	PASS	70-125
CCB5	CCB	1	106189	108669.5	97.72	PASS	70-125	76772.2	75383.9	101.84	PASS	70-125
LLCCV1	CCV2	1	118743.3	108669.5	109.27	PASS	70-125	86262.6	75383.9	114.43	PASS	70-125
ICSA2	ICSA	1	97881.4	108669.5	90.073	PASS	70-125	70191.9	75383.9	93.11	PASS	70-125
ICSAB2	ICSAB	1	101874.4	108669.5	93.75	PASS	70-125	71887.8	75383.9	95.36	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	97228.3	97228.3	100	PASS	70-125	2243050.3	2243050.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	100930.4	97228.3	103.81	PASS	70-125	2469937	2243050.3	110.12	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	98659.8	97228.3	101.47	PASS	70-125	2483146.6	2243050.3	110.7	PASS	70-125
Std3-5/50 ppb	ICAL	1	98939.5	97228.3	101.76	PASS	70-125	2511454.4	2243050.3	111.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	97209.3	97228.3	99.98	PASS	70-125	2474294.3	2243050.3	110.31	PASS	70-125
Std5-20/200 ppb	ICAL	1	94628.7	97228.3	97.33	PASS	70-125	2454264.4	2243050.3	109.42	PASS	70-125
Std6-40/400 ppb	ICAL	1	96625.8	97228.3	99.38	PASS	70-125	2482662.3	2243050.3	110.68	PASS	70-125
Std7-100/1000 ppb	ICAL	1	93800.7	97228.3	96.47	PASS	70-125	2384160	2243050.3	106.29	PASS	70-125
Std8-200/2000 ppb	ICAL	1	91903	97228.3	94.52	PASS	70-125	2381162.9	2243050.3	106.16	PASS	70-125
ICV	ICV	1	86167.9	97228.3	88.62	PASS	70-125	2228240.3	2243050.3	99.34	PASS	70-125
ICB	ICB	1	87460.3	97228.3	89.95	PASS	70-125	2309777.1	2243050.3	102.97	PASS	70-125
LLICV	CCV1	1	80676.4	97228.3	82.98	PASS	70-125	2474165.9	2243050.3	110.3	PASS	70-125
ICSA1	ICSA	1	93276.3	97228.3	95.94	PASS	70-125	2258824.1	2243050.3	100.7	PASS	70-125
ICSAB1	ICSAB	1	83995.5	97228.3	86.39	PASS	70-125	2106118	2243050.3	93.9	PASS	70-125
MB-63964	MBLK	1	94979.2	97228.3	97.69	PASS	70-125	2437198.1	2243050.3	108.66	PASS	70-125
LCS-63964	LCS	1	87657.8	97228.3	90.16	PASS	70-125	2287154.3	2243050.3	101.97	PASS	70-125
N026093-001B	SAMP	1	70381.4	97228.3	72.39	PASS	70-125	1649844.5	2243050.3	73.55	PASS	70-125
N026093-001B	SAMP	5	82467.9	97228.3	84.82	PASS	70-125	1995048	2243050.3	88.94	PASS	70-125
N026093-001B-PS	PS	1	71564.1	97228.3	73.6	PASS	70-125	1725680.7	2243050.3	76.93	PASS	70-125
N026093-001B-MS	MS	1	70416.1	97228.3	72.42	PASS	70-125	1703297.3	2243050.3	75.94	PASS	70-125
N026093-001B-MSD	MSD	1	69236.7	97228.3	71.21	PASS	70-125	1669620.7	2243050.3	74.44	PASS	70-125
N026093-002B	SAMP	1	80149.4	97228.3	82.43	PASS	70-125	1923888.4	2243050.3	85.77	PASS	70-125
N026093-003B	SAMP	1	81299.3	97228.3	83.62	PASS	70-125	1958002.7	2243050.3	87.29	PASS	70-125
N026093-001B	SAMP	10	84272.5	97228.3	86.67	PASS	70-125	2051090.3	2243050.3	91.44	PASS	70-125
CCV1	CCV	1	96456.1	97228.3	99.21	PASS	70-125	2488319.9	2243050.3	110.93	PASS	70-125
CCB1	CCB	1	89993.2	97228.3	92.56	PASS	70-125	2353437	2243050.3	104.92	PASS	70-125
N026093-001B	SAMP	50	84657.1	97228.3	87.07	PASS	70-125	2148135.7	2243050.3	95.77	PASS	70-125
N026093-001B-PS	PS	10	80748.3	97228.3	83.05	PASS	70-125	1991382.2	2243050.3	88.78	PASS	70-125
N026093-001B-MS	MS	10	80485.8	97228.3	82.78	PASS	70-125	2018637.8	2243050.3	90	PASS	70-125
N026093-001B-MSD	MSD	10	79244.1	97228.3	81.5	PASS	70-125	2017297.5	2243050.3	89.94	PASS	70-125
N026093-002B	SAMP	5	81033	97228.3	83.34	PASS	70-125	2041794.2	2243050.3	91.028	PASS	70-125
N026093-003B	SAMP	5	79496.5	97228.3	81.76	PASS	70-125	2025732.5	2243050.3	90.31	PASS	70-125
N026114-001B	SAMP	1	61313.9	97228.3	63.062	NR!	70-125	1525583.2	2243050.3	68.014	NR!	70-125
N026114-001B	SAMP	5	77150.9	97228.3	79.35	PASS	70-125	1912768.3	2243050.3	85.28	PASS	70-125
N026114-002B	SAMP	1	82700.2	97228.3	85.058	PASS	70-125	2046261	2243050.3	91.23	PASS	70-125
N026114-002B	SAMP	5	82577.2	97228.3	84.93	PASS	70-125	2096692.1	2243050.3	93.48	PASS	70-125
CCV2	CCV	1	89554.6	97228.3	92.11	PASS	70-125	2404152.8	2243050.3	107.18	PASS	70-125
CCB2	CCB	1	83822.9	97228.3	86.21	PASS	70-125	2292772	2243050.3	102.22	PASS	70-125
N026114-003B	SAMP	1	68721.8	97228.3	70.68	PASS	70-125	1750106.1	2243050.3	78.023	PASS	70-125
N026114-003B	SAMP	5	77720.4	97228.3	79.94	PASS	70-125	1992650.8	2243050.3	88.84	PASS	70-125
N026114-004B	SAMP	1	83055.2	97228.3	85.42	PASS	70-125	2054912.9	2243050.3	91.61	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	83654.7	97228.3	86.039	PASS	70-125	2107421.9	2243050.3	93.95	PASS	70-125
N026114-005B	SAMP	1	85978.1	97228.3	88.43	PASS	70-125	2166242.6	2243050.3	96.58	PASS	70-125
N026114-006B	SAMP	1	84559.3	97228.3	86.97	PASS	70-125	2103888.9	2243050.3	93.8	PASS	70-125
N026114-007B	SAMP	1	87153	97228.3	89.64	PASS	70-125	2114808.1	2243050.3	94.28	PASS	70-125
N026114-008B	SAMP	1	79709.3	97228.3	81.98	PASS	70-125	1998880.9	2243050.3	89.11	PASS	70-125
N026114-008B	SAMP	250	83394.5	97228.3	85.77	PASS	70-125	2235692.6	2243050.3	99.67	PASS	70-125
N026134-001B	SAMP	1	69764.3	97228.3	71.75	PASS	70-125	1795778.6	2243050.3	80.06	PASS	70-125
CCV3	CCV	1	86586.8	97228.3	89.055	PASS	70-125	2386721.2	2243050.3	106.41	PASS	70-125
CCB3	CCB	1	83164.8	97228.3	85.54	PASS	70-125	2265081.4	2243050.3	100.98	PASS	70-125
N026134-001B	SAMP	5	74564.5	97228.3	76.69	PASS	70-125	1908735.6	2243050.3	85.096	PASS	70-125
N026134-002B	SAMP	1	64618.9	97228.3	66.46	NR!	70-125	1664536	2243050.3	74.21	PASS	70-125
N026134-002B	SAMP	5	71691	97228.3	73.73	PASS	70-125	1967631.2	2243050.3	87.72	PASS	70-125
N026134-003B	SAMP	1	62123.1	97228.3	63.89	NR!	70-125	1605688.4	2243050.3	71.59	PASS	70-125
N026134-003B	SAMP	5	70929.3	97228.3	72.95	PASS	70-125	1867537.2	2243050.3	83.26	PASS	70-125
N026134-004B	SAMP	1	56047.3	97228.3	57.65	NR!	70-125	1434636.9	2243050.3	63.96	NR!	70-125
N026134-004B	SAMP	5	68138	97228.3	70.08	PASS	70-125	1850107.2	2243050.3	82.48	PASS	70-125
N026156-001B	SAMP	1	72393.8	97228.3	74.46	PASS	70-125	1858193.3	2243050.3	82.84	PASS	70-125
N026156-001B	SAMP	5	78373.3	97228.3	80.61	PASS	70-125	2026281.2	2243050.3	90.34	PASS	70-125
N026156-002B	SAMP	1	59376.6	97228.3	61.069	NR!	70-125	1504872.3	2243050.3	67.09	NR!	70-125
CCV4	CCV	1	85204.2	97228.3	87.63	PASS	70-125	2428459.4	2243050.3	108.27	PASS	70-125
CCB4	CCB	1	80957.4	97228.3	83.27	PASS	70-125	2286561	2243050.3	101.94	PASS	70-125
N026156-002B	SAMP	5	71246.4	97228.3	73.28	PASS	70-125	1823694.6	2243050.3	81.3	PASS	70-125
N026156-003B	SAMP	1	58490.5	97228.3	60.16	NR!	70-125	1529280.9	2243050.3	68.18	NR!	70-125
N026156-003B	SAMP	5	70812.3	97228.3	72.83	PASS	70-125	1857493.7	2243050.3	82.81	PASS	70-125
N026114-007B	SAMP	1	81942.1	97228.3	84.28	PASS	70-125	2095113.6	2243050.3	93.4	PASS	70-125
N026156-001B	SAMP	1	72040.1	97228.3	74.094	PASS	70-125	1851139.5	2243050.3	82.53	PASS	70-125
CCV5	CCV	1	89812.7	97228.3	92.37	PASS	70-125	2413691.5	2243050.3	107.61	PASS	70-125
CCB5	CCB	1	83180.4	97228.3	85.55	PASS	70-125	2295865.5	2243050.3	102.35	PASS	70-125
LLCCV1	CCV2	1	95088.2	97228.3	97.8	PASS	70-125	2615823.9	2243050.3	116.62	PASS	70-125
ICSA2	ICSA	1	71743.9	97228.3	73.79	PASS	70-125	2048243.3	2243050.3	91.32	PASS	70-125
ICSAB2	ICSAB	1	76755.7	97228.3	78.94	PASS	70-125	1999888	2243050.3	89.16	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026093
Test Method: EPA 6020
Analysis Date: 10/12/2017

Matrix: Groundwater
Batch No.: 63964

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr and Se. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026093-001B DT 5X	Arsenic	ug/L	4.399552	PASS	4.206121	4.60%	10
N026093-001B DT 5X	Chromium	ug/L	0	NA	0		10
N026093-001B DT 50X	Manganese	ug/L	998.3813	PASS	954.6786	4.58%	10
N026093-001B DT 5X	Molybdenum	ug/L	64.51221	PASS	61.87842	4.26%	10
N026093-001B DT 5X	Selenium	ug/L	0.16919	NA	0.096195	75.88%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.568	0.10	10.00	4.206	93.6	80	120				
Molybdenum	71.753	0.50	10.00	61.88	98.7	80	120				
Selenium	9.616	0.50	10.00	0.09619	95.2	80	120				

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1082.468	5.0	100.0	954.7	128	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026093
Project: PG&E Topock - GMP, RC000753.0801A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N026093-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789560

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.670	1.0	10.00	0	86.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026114

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 26, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N026114-001 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N026114-001 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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NEVADA | P:702.307.2659 F:702.307.2691
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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026114
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026114-001A	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-001B	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-001C	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-001D	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-002A	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-002B	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-002C	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-002D	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-003A	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-003B	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-003C	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-003D	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-004A	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-004B	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-004C	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-004D	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-005A	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-005B	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-005C	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-005D	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-006A	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-006B	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-006C	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-006D	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-007A	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-007B	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-007C	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-007D	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-008A	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026114
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026114-008B	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017
N026114-008C	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017
N026114-008D	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017
N026114-009A	MW-706-Q317	Groundwater	9/26/2017 3:40:00 PM	9/26/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	7900	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	2900	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026114-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118164**
Client ID:	**ZZZZZZ**	Batch ID: **R118164**	TestNo: **EPA 120.1**		Analysis Date: **9/27/2017**	SeqNo: **2775009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15550.000	0.10						15580	0.193	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	9/28/2017 10:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/12/2017 08:03 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	120	0.66	4.0		µg/L	20	9/29/2017 02:08 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	150	0.019	1.0		µg/L	1	10/12/2017 08:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	480	3.3	20		µg/L	100	9/28/2017 10:57 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	520	0.096	5.0		µg/L	5	10/12/2017 08:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	350	1.7	10		µg/L	50	9/29/2017 02:28 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	360	0.096	5.0		µg/L	5	10/12/2017 08:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.8	0.033	0.20		µg/L	1	9/29/2017 02:49 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	4.2	0.019	1.0		µg/L	1	10/12/2017 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.1	0.033	0.20		µg/L	1	9/29/2017 03:07 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.6	0.019	1.0		µg/L	1	10/12/2017 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.1	0.033	0.20		µg/L	1	9/29/2017 03:26 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.6	0.019	1.0		µg/L	1	10/12/2017 11:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	20000	66	400		µg/L	2000	9/29/2017 04:23 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	24000	4.8	250		µg/L	250	10/12/2017 09:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-706-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/29/2017 04:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118231**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **PBW**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118231**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **LCSW**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.949	0.20	5.000	0	99.0	90	110				

Sample ID **N026114-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.584	1.0	5.000	0	91.7	90	110				

Sample ID **N026114-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	989.020	20	500.0	480.4	102	90	110				

Sample ID **N026114-003ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	479.180	20						480.4	0.261	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026114-003AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	978.460	20	500.0	480.4	99.6	90	110	989.0	1.07	20	

Sample ID **N026114-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	219.714	4.0	100.0	122.7	97.0	90	110				

Sample ID **N026114-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	599.210	10	250.0	348.6	100	90	110				

Sample ID **N026114-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.838	0.20	1.000	3.838	99.9	90	110				

Sample ID **N026114-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.100	0.20	1.000	3.101	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026114-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777697

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.081	0.20	1.000	3.110	97.2	90	110				

Sample ID	N026114-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777699

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.020	0.20	1.000	0	102	90	110				

Sample ID	N026114-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777701

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	29667.000	400	10000	20180	94.9	90	110				

Sample ID	N026134-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777703

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	65.644	1.0	25.00	41.14	98.0	90	110				

Sample ID	N026134-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777707

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026134-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777709

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.268	1.0	5.000	0.2765	99.8	90	110				

Sample ID	N026134-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777711

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.621	1.0	5.000	3.798	96.4	90	110				

Sample ID	N026134-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777715

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	66.685	1.0	25.00	41.76	99.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63964	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	PBW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63964	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	LCSW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789562

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.069	0.022	0.050		mg/L	1	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	13	0.44	1.0		mg/L	20	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	8.6	0.22	0.50		mg/L	10	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	17	0.44	1.0		mg/L	20	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.5	0.11	0.25		mg/L	5	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.9	0.11	0.25		mg/L	5	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.7	0.11	0.25		mg/L	5	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	17	0.44	1.0		mg/L	20	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118389	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	PBW	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784949

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118389	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	LCSW	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.8	85	115				

Sample ID	N026256-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784952

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.02610	0	20	

Sample ID	N026256-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784955

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.175	0.25	2.500	2.950	89.0	75	125				

Sample ID	N026256-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784956

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.432	0.25	2.500	2.950	99.3	75	125	5.174	4.86	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026114
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026114-001

Client Sample ID: MW-60BR-245-Q317
Collection Date: 9/26/2017 7:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Arsenic	5.3	0.025	0.10		µg/L	1	10/12/2017 08:03 AM
Manganese	14	0.056	0.50		µg/L	1	10/12/2017 08:03 AM
Molybdenum	56	0.19	2.5		µg/L	5	10/12/2017 08:09 AM
Selenium	3.4	0.14	2.5		µg/L	5	10/12/2017 08:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	0.43	0.025	0.10		µg/L	1	10/12/2017 08:15 AM
Manganese	170	0.056	0.50		µg/L	1	10/12/2017 08:15 AM
Molybdenum	31	0.039	0.50		µg/L	1	10/12/2017 08:15 AM
Selenium	9.0	0.028	0.50		µg/L	1	10/12/2017 08:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.9	0.025	0.10		µg/L	1	10/12/2017 08:37 AM
Manganese	8.5	0.056	0.50		µg/L	1	10/12/2017 08:37 AM
Molybdenum	27	0.039	0.50		µg/L	1	10/12/2017 08:37 AM
Selenium	6.5	0.028	0.50		µg/L	1	10/12/2017 08:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Arsenic	2.2	0.025	0.10		µg/L	1	10/12/2017 08:48 AM
Manganese	6.2	0.056	0.50		µg/L	1	10/12/2017 08:48 AM
Molybdenum	81	0.039	0.50		µg/L	1	10/12/2017 08:48 AM
Selenium	11	0.028	0.50		µg/L	1	10/12/2017 08:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	7.7	0.025	0.10		µg/L	1	10/12/2017 08:59 AM
Manganese	100	0.056	0.50		µg/L	1	10/12/2017 08:59 AM
Molybdenum	38	0.039	0.50		µg/L	1	10/12/2017 08:59 AM
Selenium	1.2	0.028	0.50		µg/L	1	10/12/2017 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	7.7	0.025	0.10		µg/L	1	10/12/2017 09:05 AM
Manganese	100	0.056	0.50		µg/L	1	10/12/2017 09:05 AM
Molybdenum	37	0.039	0.50		µg/L	1	10/12/2017 09:05 AM
Selenium	1.3	0.028	0.50		µg/L	1	10/12/2017 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	7.5	0.025	0.10		µg/L	1	10/12/2017 11:07 AM
Manganese	98	0.056	0.50		µg/L	1	10/12/2017 11:07 AM
Molybdenum	36	0.039	0.50		µg/L	1	10/12/2017 11:07 AM
Selenium	1.3	0.028	0.50		µg/L	1	10/12/2017 11:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Arsenic	2.7	0.025	0.10		µg/L	1	10/12/2017 09:16 AM
Manganese	2.5	0.056	0.50		µg/L	1	10/12/2017 09:16 AM
Molybdenum	36	0.039	0.50		µg/L	1	10/12/2017 09:16 AM
Selenium	14	0.028	0.50		µg/L	1	10/12/2017 09:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Labspec	CalTrans	2. Headspace
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200 Fax:	Others ✓	LEVEL III	3. Container Intact
Title: SR. Technician	Phone: 916-786-3302 Fax:		Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 9/26/17	Sampled By: Gary Clift		Global ID:	Regulatory	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*			Specify State: CA	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 9/26/2017				Sample Temp: 2-3C
Project Number: RC000753.0801					Courier: Lab; Tracking No.:

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026114 - 01	MW-60BR-245-Q317	9/26/2017	7:35		X		X	X	X	X	X		X					E	4	P	BN	
2	- 02	MW-65-160-Q317	9/26/2017	10:29		X		X	X	X	X	X		X					E	4	P	BN	
3	- 03	MW-65-225-Q317	9/26/2017	11:18		X		X	X	X	X	X		X					E	4	P	BN	
4	- 04	MW-69-195-Q317	9/26/2017	12:21		X		X	X	X	X	X		X					E	4	P	BN	
5	- 05	MW-38S-Q317	9/26/2017	15:17		X		X	X	X	X	X		X					E	4	P	BN	
6	- 06	MW-38S-SMT-Q317	9/26/2017	14:58		X		X	X	X	X	X		X					E	4	P	BN	
7	- 07	MW-901-Q317	9/26/2017	15:08		X		X	X	X	X	X		X					E	4	P	BN	
8	- 08	MW-68-180-Q317	9/26/2017	13:42		X		X	X	X	X	X		X					E	4	P	BN	
9	- 09	MW-706-Q317	9/26/2017	15:40		X													E	1	P	BN	
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Relinquished by (Signature and Printed Name)	Date/Time
GARY RCLIFT	9/26/17 1630		9/26/17 1630
	9/26/17 2309		9/26/17 2309

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/26/2017	Workorder:	N026114
Rep sample Temp (Deg C):	2.3	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/2/2017

Reviewed By: 10/6/2017

Sonny Lorenzo

From:	Marlon B. Cartin <marlon@assetlaboratories.com>
Sent:	Wednesday, October 04, 2017 9:26 AM
To:	'Madsen, Laura'; 'ASSET LV Sample Control'; 'Fernando Rivera'
Cc:	'Bush, Dan'; 'Serna, Erica'; 'Jeffers, Gantt'; 'Clift, Gary'; 'Kalib Sumter'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'; 'Yoandra Rodriguez'
Subject:	RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017

We will process this Laura.

Sonny/Andrea – Please add in LIMS and inform the analyst ASAP.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:25 AM
To: ASSET LV Sample Control; Marlon B. Cartin; 'Fernando Rivera'
Cc: Madsen, Laura; Bush, Dan; Serna, Erica; Jeffers, Gantt; Clift, Gary; Kalib Sumter
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017
Importance: High

Hi Marlon,
Please revise the following SDGs to include dissolved arsenic. It was missed on the COC.

N026114	MW-38S-Q317
N026114	MW-38S-SMT-Q317
N026114	MW-901-Q317
N026134	MW-58BR-Q317
N026114	MW-60BR-245-Q317
N026093	MW-62-065-Q317
N026093	MW-902-Q317
N026134	MW-62-110-Q317
N026093	MW-64BR-Q317
N026114	MW-65-160-Q317
N026114	MW-65-225-Q317
N026114	MW-68-180-Q317
N026114	MW-69-195-Q317
N026134	MW-72BR-200-Q317
N026134	MW-73-080-Q317

Thanks,
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Tuesday, September 26, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N026093 COC and Work Order Summary for Samples Received 9/25/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 9/25/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
www.assetlaboratories.com

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ASSET Laboratories

WORK ORDER Summary

27-Sep-17

WorkOrder: N026114

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/26/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026114-001A	MW-60BR-245-Q317	9/26/2017 7:35:00 AM	10/10/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-001B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-001C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-001D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-002A	MW-65-160-Q317	9/26/2017 10:29:00 AM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-002B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-002C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-002D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-003A	MW-65-225-Q317	9/26/2017 11:18:00 AM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-003B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-003C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-003D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-004A	MW-69-195-Q317	9/26/2017 12:21:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-004B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

27-Sep-17

WorkOrder: N026114

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/26/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026114-004B	MW-69-195-Q317	9/26/2017 12:21:00 PM	10/10/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-004C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-004D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-005A	MW-38S-Q317	9/26/2017 3:17:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-005B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-005C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-005D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-006A	MW-38S-SMT-Q317	9/26/2017 2:58:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-006B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-006C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-006D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-007A	MW-901-Q317	9/26/2017 3:08:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-007B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-007C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-007D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

27-Sep-17

WorkOrder: N026114

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/26/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026114-008A	MW-68-180-Q317	9/26/2017 1:42:00 PM	10/10/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-008B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-008C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-008D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-009A	MW-706-Q317	9/26/2017 3:40:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-010A	FOLDER	10/10/2017	10/10/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/10/2017		Folder	Folder	☐	☐	☐	LAB
			10/10/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N026114

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026114

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 26, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N026114-001 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N026114-001 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

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CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026114
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026114-001A	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-001B	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-001C	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-001D	MW-60BR-245-Q317	Groundwater	9/26/2017 7:35:00 AM	9/26/2017	10/13/2017
N026114-002A	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-002B	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-002C	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-002D	MW-65-160-Q317	Groundwater	9/26/2017 10:29:00 AM	9/26/2017	10/13/2017
N026114-003A	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-003B	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-003C	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-003D	MW-65-225-Q317	Groundwater	9/26/2017 11:18:00 AM	9/26/2017	10/13/2017
N026114-004A	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-004B	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-004C	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-004D	MW-69-195-Q317	Groundwater	9/26/2017 12:21:00 PM	9/26/2017	10/13/2017
N026114-005A	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-005B	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-005C	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-005D	MW-38S-Q317	Groundwater	9/26/2017 3:17:00 PM	9/26/2017	10/13/2017
N026114-006A	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-006B	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-006C	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-006D	MW-38S-SMT-Q317	Groundwater	9/26/2017 2:58:00 PM	9/26/2017	10/13/2017
N026114-007A	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-007B	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-007C	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-007D	MW-901-Q317	Groundwater	9/26/2017 3:08:00 PM	9/26/2017	10/13/2017
N026114-008A	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026114
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026114-008B	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017
N026114-008C	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017
N026114-008D	MW-68-180-Q317	Groundwater	9/26/2017 1:42:00 PM	9/26/2017	10/13/2017
N026114-009A	MW-706-Q317	Groundwater	9/26/2017 3:40:00 PM	9/26/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	7900	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	2900	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170927A**	QC Batch: **R118164**			PrepDate			Analyst: **LR**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	9/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026114-001DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**118164**
Client ID:	**ZZZZZZ**	Batch ID:	**R118164**	TestNo:	**EPA 120.1**			Analysis Date:	**9/27/2017**	SeqNo:	**2775009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15550.000	0.10						15580	0.193	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	9/28/2017 10:08 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/12/2017 08:03 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026114
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026114-002

Client Sample ID: MW-65-160-Q317
Collection Date: 9/26/2017 10:29:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	120	0.66	4.0		µg/L	20	9/29/2017 02:08 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	150	0.019	1.0		µg/L	1	10/12/2017 08:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	480	3.3	20		µg/L	100	9/28/2017 10:57 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	520	0.096	5.0		µg/L	5	10/12/2017 08:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	350	1.7	10		µg/L	50	9/29/2017 02:28 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	360	0.096	5.0		µg/L	5	10/12/2017 08:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026114
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026114-005

Client Sample ID: MW-38S-Q317
Collection Date: 9/26/2017 3:17:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.8	0.033	0.20		µg/L	1	9/29/2017 02:49 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	4.2	0.019	1.0		µg/L	1	10/12/2017 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.1	0.033	0.20		µg/L	1	9/29/2017 03:07 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.6	0.019	1.0		µg/L	1	10/12/2017 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026114
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026114-007

Client Sample ID: MW-901-Q317
Collection Date: 9/26/2017 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.1	0.033	0.20		µg/L	1	9/29/2017 03:26 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.6	0.019	1.0		µg/L	1	10/12/2017 11:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	20000	66	400		µg/L	2000	9/29/2017 04:23 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171012A**	QC Batch: **63964**			PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	24000	4.8	250		µg/L	250	10/12/2017 09:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-706-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/29/2017 04:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R118231	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	PBW	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/28/2017	SeqNo:	2777665

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R118231	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	LCSW	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/28/2017	SeqNo:	2777666

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.949	0.20	5.000	0	99.0	90	110				

Sample ID	N026114-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/28/2017	SeqNo:	2777668

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.584	1.0	5.000	0	91.7	90	110				

Sample ID	N026114-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/28/2017	SeqNo:	2777670

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	989.020	20	500.0	480.4	102	90	110				

Sample ID	N026114-003ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/28/2017	SeqNo:	2777671

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	479.180	20						480.4	0.261	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026114-003AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	978.460	20	500.0	480.4	99.6	90	110	989.0	1.07	20	

Sample ID **N026114-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	219.714	4.0	100.0	122.7	97.0	90	110				

Sample ID **N026114-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	599.210	10	250.0	348.6	100	90	110				

Sample ID **N026114-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.838	0.20	1.000	3.838	99.9	90	110				

Sample ID **N026114-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.100	0.20	1.000	3.101	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026114-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.081	0.20	1.000	3.110	97.2	90	110				

Sample ID **N026114-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.020	0.20	1.000	0	102	90	110				

Sample ID **N026114-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	29667.000	400	10000	20180	94.9	90	110				

Sample ID **N026134-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	65.644	1.0	25.00	41.14	98.0	90	110				

Sample ID **N026134-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026134-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777709

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.268	1.0	5.000	0.2765	99.8	90	110				

Sample ID	N026134-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777711

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.621	1.0	5.000	3.798	96.4	90	110				

Sample ID	N026134-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777715

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	66.685	1.0	25.00	41.76	99.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63964	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	PBW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63964	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	LCSW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789562

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	0.069	0.022	0.050		mg/L	1	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	13	0.44	1.0		mg/L	20	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	8.6	0.22	0.50		mg/L	10	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 12:21:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	17	0.44	1.0		mg/L	20	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	2.5	0.11	0.25		mg/L	5	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.9	0.11	0.25		mg/L	5	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.7	0.11	0.25		mg/L	5	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171006E**	QC Batch: **R118389**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	17	0.44	1.0		mg/L	20	10/6/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118389	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	PBW	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784949

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118389	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	LCSW	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.8	85	115				

Sample ID	N026256-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784952

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.02610	0	20	

Sample ID	N026256-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784955

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.175	0.25	2.500	2.950	89.0	75	125				

Sample ID	N026256-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118389
Client ID:	ZZZZZZ	Batch ID:	R118389	TestNo:	SM4500-NO3			Analysis Date:	10/6/2017	SeqNo:	2784956

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.432	0.25	2.500	2.950	99.3	75	125	5.174	4.86	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 7:35:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	5.3	0.025	0.10		µg/L	1	10/12/2017 08:03 AM
Manganese	14	0.056	0.50		µg/L	1	10/12/2017 08:03 AM
Molybdenum	56	0.19	2.5		µg/L	5	10/12/2017 08:09 AM
Selenium	3.4	0.14	2.5		µg/L	5	10/12/2017 08:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 10:29:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	0.43	0.025	0.10		µg/L	1	10/12/2017 08:15 AM
Manganese	170	0.056	0.50		µg/L	1	10/12/2017 08:15 AM
Molybdenum	31	0.039	0.50		µg/L	1	10/12/2017 08:15 AM
Selenium	9.0	0.028	0.50		µg/L	1	10/12/2017 08:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.9	0.025	0.10		µg/L	1	10/12/2017 08:37 AM
Manganese	8.5	0.056	0.50		µg/L	1	10/12/2017 08:37 AM
Molybdenum	27	0.039	0.50		µg/L	1	10/12/2017 08:37 AM
Selenium	6.5	0.028	0.50		µg/L	1	10/12/2017 08:37 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026114
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026114-004

Client Sample ID: MW-69-195-Q317
Collection Date: 9/26/2017 12:21:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	2.2	0.025	0.10		µg/L	1	10/12/2017 08:48 AM
Manganese	6.2	0.056	0.50		µg/L	1	10/12/2017 08:48 AM
Molybdenum	81	0.039	0.50		µg/L	1	10/12/2017 08:48 AM
Selenium	11	0.028	0.50		µg/L	1	10/12/2017 08:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 3:17:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	7.7	0.025	0.10		µg/L	1	10/12/2017 08:59 AM
Manganese	100	0.056	0.50		µg/L	1	10/12/2017 08:59 AM
Molybdenum	38	0.039	0.50		µg/L	1	10/12/2017 08:59 AM
Selenium	1.2	0.028	0.50		µg/L	1	10/12/2017 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-SMT-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 2:58:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	7.7	0.025	0.10		µg/L	1	10/12/2017 09:05 AM
Manganese	100	0.056	0.50		µg/L	1	10/12/2017 09:05 AM
Molybdenum	37	0.039	0.50		µg/L	1	10/12/2017 09:05 AM
Selenium	1.3	0.028	0.50		µg/L	1	10/12/2017 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026114
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026114-007

Client Sample ID: MW-901-Q317
Collection Date: 9/26/2017 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	7.5	0.025	0.10		µg/L	1	10/12/2017 11:07 AM
Manganese	98	0.056	0.50		µg/L	1	10/12/2017 11:07 AM
Molybdenum	36	0.039	0.50		µg/L	1	10/12/2017 11:07 AM
Selenium	1.3	0.028	0.50		µg/L	1	10/12/2017 11:07 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q317
Lab Order:	N026114	**Collection Date:**	9/26/2017 1:42:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026114-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	2.7	0.025	0.10		µg/L	1	10/12/2017 09:16 AM
Manganese	2.5	0.056	0.50		µg/L	1	10/12/2017 09:16 AM
Molybdenum	36	0.039	0.50		µg/L	1	10/12/2017 09:16 AM
Selenium	14	0.028	0.50		µg/L	1	10/12/2017 09:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Global ID: Specify State: CA
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200 Fax:	6. Method of Cooling: ICE
Title: SR. Technician	Phone: 916-786-3302 Fax:		Sample Temp: 2-3c
Signature: Date: 9/26/17	Sampled By: Gary Clift		

I hereby authorize ASSET Labs to perform the tests indicated below.

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Project Name: PG&E Topock - GMP
Project Number: RC000753.0801
Signature: Date: 9/26/2017

Courier: Lab
Tracking No.:

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026114 - 01	MW-60BR-245-Q317	9/26/2017	7:35		X		X	X	X	X	X		X					E	4	P	BN	
2	- 02	MW-65-160-Q317	9/26/2017	10:29		X		X	X	X	X	X		X					E	4	P	BN	
3	- 03	MW-65-225-Q317	9/26/2017	11:18		X		X	X	X	X	X		X					E	4	P	BN	
4	- 04	MW-69-195-Q317	9/26/2017	12:21		X		X	X	X	X	X		X					E	4	P	BN	
5	- 05	MW-38S-Q317	9/26/2017	15:17		X		X	X	X	X	X		X					E	4	P	BN	
6	- 06	MW-38S-SMT-Q317	9/26/2017	14:58		X		X	X	X	X	X		X					E	4	P	BN	
7	- 07	MW-901-Q317	9/26/2017	15:08		X		X	X	X	X	X		X					E	4	P	BN	
8	- 08	MW-68-180-Q317	9/26/2017	13:42		X		X	X	X	X	X		X					E	4	P	BN	
9	- 09	MW-706-Q317	9/26/2017	15:40		X													E	1	P	BN	
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Relinquished by (Signature and Printed Name)	Date/Time
GARY RCLIFT	9/26/17 1630		9/26/17 1630
	9/26/17 2309		9/26/17 2309

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/26/2017	Workorder:	N026114
Rep sample Temp (Deg C):	2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/2/2017

Reviewed By: 10/6/2017

Sonny Lorenzo

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, October 04, 2017 9:26 AM
To: 'Madsen, Laura'; 'ASSET LV Sample Control'; 'Fernando Rivera'
Cc: 'Bush, Dan'; 'Serna, Erica'; 'Jeffers, Gantt'; 'Clift, Gary'; 'Kalib Sumter'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'; 'Yoandra Rodriguez'
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017

We will process this Laura.

Sonny/Andrea – Please add in LIMS and inform the analyst ASAP.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:25 AM
To: ASSET LV Sample Control; Marlon B. Cartin; 'Fernando Rivera'
Cc: Madsen, Laura; Bush, Dan; Serna, Erica; Jeffers, Gantt; Clift, Gary; Kalib Sumter
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017
Importance: High

Hi Marlon,
Please revise the following SDGs to include dissolved arsenic. It was missed on the COC.

N026114	MW-38S-Q317
N026114	MW-38S-SMT-Q317
N026114	MW-901-Q317
N026134	MW-58BR-Q317
N026114	MW-60BR-245-Q317
N026093	MW-62-065-Q317
N026093	MW-902-Q317
N026134	MW-62-110-Q317
N026093	MW-64BR-Q317
N026114	MW-65-160-Q317
N026114	MW-65-225-Q317
N026114	MW-68-180-Q317
N026114	MW-69-195-Q317
N026134	MW-72BR-200-Q317
N026134	MW-73-080-Q317

Thanks,
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Tuesday, September 26, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N026093 COC and Work Order Summary for Samples Received 9/25/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 9/25/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
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ASSET Laboratories

WORK ORDER Summary

27-Sep-17

WorkOrder: N026114

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/26/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026114-001A	MW-60BR-245-Q317	9/26/2017 7:35:00 AM	10/10/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-001B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-001C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-001D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-002A	MW-65-160-Q317	9/26/2017 10:29:00 AM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-002B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-002C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-002D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-003A	MW-65-225-Q317	9/26/2017 11:18:00 AM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-003B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-003C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-003D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-004A	MW-69-195-Q317	9/26/2017 12:21:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-004B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

27-Sep-17

WorkOrder: N026114

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/26/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026114-004B	MW-69-195-Q317	9/26/2017 12:21:00 PM	10/10/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-004C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-004D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-005A	MW-38S-Q317	9/26/2017 3:17:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-005B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-005C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-005D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-006A	MW-38S-SMT-Q317	9/26/2017 2:58:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-006B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-006C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-006D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-007A	MW-901-Q317	9/26/2017 3:08:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-007B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-007C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-007D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

27-Sep-17

WorkOrder: N026114

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/26/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026114-008A	MW-68-180-Q317	9/26/2017 1:42:00 PM	10/10/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-008B			10/10/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/10/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026114-008C			10/10/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026114-008D			10/10/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026114-009A	MW-706-Q317	9/26/2017 3:40:00 PM	10/10/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026114-010A	FOLDER	10/10/2017	10/10/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/10/2017		Folder	Folder	☐	☐	☐	LAB
			10/10/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N026114**

NAME	TEST METHOD
Claire Ignacio	EPA 6020
Quennie Manimtim	SM 4500-NO3F
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118164 **Analyst:** LSR

ASSET #: N026114 **Date Analyzed:** 9/27/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 9/29/2017

2nd Level Reviewer: 10/12/2017 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Date: 9/26/17 1036

Analyst: LSR

	Standard	Std ID	Reading	Comments
	9.25 mS/cm	CINV - 170620B	9.34 mS/cm @19.9°C	% Rec: (90-110%)
	1410	170822C	1416 @19.9°C	
	9976	170615H	9960 @19.9°C	
	99672	170822E	99500 @19.9°C	

	Sample ID	Matrix	Reading	Comments
1	ND26093-001D	H2O	12770 @20.8C	
2	1DDUP		12750 @20.7C	
3	2D		62940 @20.4C	
4	3D		60140 @20.8C	
5				
6				Julia Ramit 9/29/2017
7				
8	1413 mS/cm	CINV - 170615F	1407 mS/cm @21.0°C	
9	10000	170125E	98200 @21.0°C	
10	99672	170831B	95100 @21.0°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 9/27/17 1330

Analyst: LSR

	Standard	Std ID	Reading	Comments
	9.25 mS/cm	CINV - 170620B	9.49 mS/cm @24.1°C	% Rec: (90-110%)
	1410	170822C	1419 @24.1°C	
	9976	170615H	10020 @24.0°C	
	99672	170822E	99600 @24.0°C	

	Sample ID	Matrix	Reading	Comments
1	ND26114-001D	H2O	15580 @19.9C	
2	1DDUP		15557 @20.4°C	
3	2D		32940 @20.8C	
4	3D		78660 @20.2C	
5	4D		29220 @20.3C	
6	5D		14761 @20.5C	
7	6D		14774 @20.8C	Julia Ramit
8	7D		15716 @20.5C	9/29/2017
9	8D		36880 @20.6C	
10	1413 mS/cm	CINV - 170615F	1407 @24.1°C	
Dup	10000	170125E	96390 @24.2C	Accept: 10% water, 20% soil
	Std Chk: 99672	170831B	99300 @24.0°C	% Rec: (90-110%)

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
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EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R118231
ASSET #: N026114

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 9/28/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)	X			X		
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:
Dilution was necessary in N026114-001A due to possible matrix interference.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 10/7/2017

2nd Level Reviewer 10/10/2017 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N026114~~-001A~~ -002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.1355 * 20$$

$$Cr^{+6}, \mu g/L = 122.71$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 120}$$

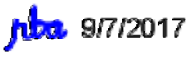
rba 10/7/2017

ANALYSIS RUN LOG

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported



Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 9/7/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170928A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**29/Sep/17 08:31:32**
No. of Injections:	**81**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/28/2017 21:00	Finished	BLANK
11	BLANK	2	1000	Unknown		09/28/2017 21:11	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/28/2017 21:21	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/28/2017 21:30	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/28/2017 21:39	Finished	CCB R170912A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/28/2017 21:49	Finished	MB R170912A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/28/2017 21:58	Finished	LCS, IWST-170622D
17	N026114-001A,SAMP	8	1000	Unknown		09/28/2017 22:08	Finished	SAMP,2>10mL
18	N026114-001AMS,MS	9	1000	Unknown		09/28/2017 22:17	Finished	MS (5ppb), IWST-170622D,2>1
19	N026114-001AMS,MS	10	1000	Unknown		09/28/2017 22:27	Finished	MS (1ppb), IWST-170622D,2>1
20	N026114-001A,SAMP	11	1000	Unknown		09/28/2017 22:38	Finished	SAMP,10mL
21	N026114-001AMS,MS	12	1000	Unknown		09/28/2017 22:48	Finished	MS (1ppb), IWST-170622D,10
22	N026114-003A,SAMP	13	1000	Unknown		09/28/2017 22:57	Finished	SAMP,0.1>10mL
23	N026114-003AMS,MS	14	1000	Unknown		09/28/2017 23:06	Finished	MS (5ppb), IWST-170622D,0.1
24	N026114-003ADUP,D	15	1000	Unknown		09/28/2017 23:16	Finished	DUP,0.1>10mL
25	CCV-2,CCV1,1,	16	1000	Unknown		09/28/2017 23:25	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		09/28/2017 23:35	Finished	CCB R170921A
27	N026153-007C,SAMP	19	1000	Unknown		09/28/2017 23:45	Finished	SAMP,10mL
28	N026153-006C,SAMP	20	1000	Unknown		09/28/2017 23:56	Finished	SAMP,10mL
29	N026153-003C,SAMP	21	1000	Unknown		09/29/2017 00:06	Finished	SAMP,10mL
30	N026153-004C,SAMP	22	1000	Unknown		09/29/2017 00:15	Finished	SAMP,10mL
31	N026153-007CREP,D	23	1000	Unknown		09/29/2017 00:25	Finished	REP,10mL
32	N026153-006CREP,D	24	1000	Unknown		09/29/2017 00:34	Finished	REP,10mL
33	N026153-003CREP,D	25	1000	Unknown		09/29/2017 00:44	Finished	REP,10mL
34	N026153-004C,SAMP	26	1000	Unknown		09/29/2017 00:53	Finished	SAMP,0.1>10mL
35	N026153-004CREP,D	27	1000	Unknown		09/29/2017 01:02	Finished	REP,0.1>10mL
36	N026153-007CREP,D	28	1000	Unknown		09/29/2017 01:12	Finished	REP,10mL
37	CCV-3,CCV,1,	29	1000	Unknown		09/29/2017 01:21	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		09/29/2017 01:31	Finished	CCB R170921A
39	CCB-3,CCB,1,	31	1000	Unknown		09/29/2017 01:48	Finished	CCB R170921A
40	N026114-003AMSD,M	32	1000	Unknown		09/29/2017 01:59	Finished	MSD (5ppb), IWST-170622D,0.
41	N026114-002A,SAMP	33	1000	Unknown		09/29/2017 02:08	Finished	SAMP,0.5>10mL
42	N026114-002AMS,MS	34	1000	Unknown		09/29/2017 02:18	Finished	MS (5ppb), IWST-170622D,0.5
43	N026114-004A,SAMP	1	1000	Unknown		09/29/2017 02:28	Finished	SAMP,0.2>10mL
44	N026114-004AMS,MS	2	1000	Unknown		09/29/2017 02:39	Finished	MS (5ppb), IWST-170622D,0.2
45	N026114-005A,SAMP	3	1000	Unknown		09/29/2017 02:49	Finished	SAMP,10mL
46	N026114-005AMS,MS	4	1000	Unknown		09/29/2017 02:58	Finished	MS (1ppb), IWST-170622D,10
47	N026114-006A,SAMP	5	1000	Unknown		09/29/2017 03:07	Finished	SAMP,10mL
48	N026114-006AMS,MS	6	1000	Unknown		09/29/2017 03:17	Finished	MS (1ppb), IWST-170622D,10
49	N026114-007A,SAMP	7	1000	Unknown		09/29/2017 03:26	Finished	SAMP,10mL
50	CCV-4,CCV1,1,	8	1000	Unknown		09/29/2017 03:36	Finished	CCV @10ppb, IWST-170622C
51	CCB-4,CCB,1,	9	1000	Unknown		09/29/2017 03:45	Finished	CCB R170921A
52	N026114-007AMS,MS	10	1000	Unknown		09/29/2017 03:55	Finished	MS (1ppb), IWST-170622D,10
53	N026114-009A,SAMP	11	1000	Unknown		09/29/2017 04:04	Finished	SAMP,10mL
54	N026114-009AMS,MS	12	1000	Unknown		09/29/2017 04:14	Finished	MS (1ppb), IWST-170622D,10
55	N026114-008A,SAMP	13	1000	Unknown		09/29/2017 04:23	Finished	SAMP,0.005>10mL
56	N026114-008AMS,MS	14	1000	Unknown		09/29/2017 04:33	Finished	MS (5ppb), IWST-170622D,0.0
57	N026134-001A,SAMP	15	1000	Unknown		09/29/2017 04:42	Finished	SAMP,10mL
58	N026134-001AMS,MS	16	1000	Unknown		09/29/2017 04:52	Finished	MS (5ppb), IWST-170622D,10
59	N026134-003A,SAMP	17	1000	Unknown		09/29/2017 05:01	Finished	SAMP,2>10mL
60	N026134-003AMS,MS	18	1000	Unknown		09/29/2017 05:10	Finished	MS (5ppb), IWST-170622D,2>1

61	N026134-005A,SAMP	19	1000	Unknown		09/29/2017 05:20	Finished	SAMP,10mL
62	CCV-5,CCV,1,	20	1000	Unknown		09/29/2017 05:29	Finished	CCV @5ppb, IWST-170622C
63	CCB-5,CCB,1,	21	1000	Unknown		09/29/2017 05:39	Finished	CCB R170921A
64	N026134-005AMS,MS	22	1000	Unknown		09/29/2017 05:48	Finished	MS (1ppb), IWST-170622D,10
65	N026134-002A,SAMP	23	1000	Unknown		09/29/2017 05:58	Finished	SAMP,10mL
66	N026134-002AMS,MS	24	1000	Unknown		09/29/2017 06:07	Finished	MS (1ppb), IWST-170622D,10
67	N026134-004A,SAMP	25	1000	Unknown		09/29/2017 06:17	Finished	SAMP,10mL
68	N026134-004AMS,MS	26	1000	Unknown		09/29/2017 06:26	Finished	MS (1ppb), IWST-170622D,10
69	N026134-002A,SAMP	27	1000	Unknown		09/29/2017 06:36	Finished	SAMP,2>10mL
70	N026134-002AMS,MS	28	1000	Unknown		09/29/2017 06:45	Finished	MS (1ppb), IWST-170622D,2>
71	N026134-004A,SAMP	29	1000	Unknown		09/29/2017 06:55	Finished	SAMP,2>10mL
72	N026134-004AMS,MS	30	1000	Unknown		09/29/2017 07:04	Finished	MS (1ppb), IWST-170622D,2>
73	CCV-6,CCV1,1,	31	1000	Unknown		09/29/2017 07:13	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	32	1000	Unknown		09/29/2017 07:23	Finished	CCB R170921A
75	N026134-001A,SAMP	33	1000	Unknown		09/29/2017 07:32	Finished	SAMP,2>10mL
76	N026134-001AMS,MS	34	1000	Unknown		09/29/2017 07:42	Finished	MS (5ppb), IWST-170622D,2>
77	CCV-7,CCV,1,	35	1000	Unknown		09/29/2017 07:51	Finished	CCV @10ppb, IWST-170622C
78	CCB-7,CCB,1,	36	1000	Unknown		09/29/2017 08:01	Finished	CCB R170921A
79	SHUTDOWN	37	1000	Unknown		09/29/2017 08:10	Finished	
80	Eluent: R170927C	38	1000	Unknown		n.a.	Finished	Eluent
81	PCR: R170926A	39	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:00 PM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:11 PM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/28/17 9:21 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/28/17 9:30 PM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/28/17 9:39 PM	Reported
15	MB-R118231	MBLK	1	Hexavalent Chromium	09/28/17 9:49 PM	Reported
16	LCS-R118231	LCS	1	Hexavalent Chromium	09/28/17 9:58 PM	Reported
17	N026114-001A	SAMP	5	Hexavalent Chromium	09/28/17 10:08 PM	Reported
18	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:17 PM	Reported
19	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:27 PM	Reported
20	N026114-001A	SAMP	1	Hexavalent Chromium	09/28/17 10:38 PM	Not Reported
21	N026114-001AMS	MS	1	Hexavalent Chromium	09/28/17 10:48 PM	Not Reported
22	N026114-003A	SAMP	100	Hexavalent Chromium	09/28/17 10:57 PM	Reported
23	N026114-003AMS	MS	100	Hexavalent Chromium	09/28/17 11:06 PM	Reported
24	N026114-003ADUP	DUP	100	Hexavalent Chromium	09/28/17 11:16 PM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/28/17 11:25 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/28/17 11:35 PM	Reported
27	N026153-007C	SAMP	1	Hexavalent Chromium	09/28/17 11:45 PM	Reported
28	N026153-006C	SAMP	1	Hexavalent Chromium	09/28/17 11:56 PM	Reported
29	N026153-003C	SAMP	1	Hexavalent Chromium	09/29/17 12:06 AM	Reported
30	N026153-004C	SAMP	1	Hexavalent Chromium	09/29/17 12:15 AM	Not Reported
31	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 12:25 AM	Not Reported
32	N026153-006CREP	DUP	1	Hexavalent Chromium	09/29/17 12:34 AM	Reported
33	N026153-003CREP	DUP	1	Hexavalent Chromium	09/29/17 12:44 AM	Reported
34	N026153-004C	SAMP	100	Hexavalent Chromium	09/29/17 12:53 AM	Reported
35	N026153-004CREP	DUP	100	Hexavalent Chromium	09/29/17 1:02 AM	Reported
36	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 1:12 AM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	09/29/17 1:21 AM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:31 AM	Not Reported
39	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:48 AM	Reported
40	N026114-003AMSD	MSD	100	Hexavalent Chromium	09/29/17 1:59 AM	Reported
41	N026114-002A	SAMP	20	Hexavalent Chromium	09/29/17 2:08 AM	Reported
42	N026114-002AMS	MS	20	Hexavalent Chromium	09/29/17 2:18 AM	Reported

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026114-004A	SAMP	50	Hexavalent Chromium	09/29/17 2:28 AM	Reported
44	N026114-004AMS	MS	50	Hexavalent Chromium	09/29/17 2:39 AM	Reported
45	N026114-005A	SAMP	1	Hexavalent Chromium	09/29/17 2:49 AM	Reported
46	N026114-005AMS	MS	1	Hexavalent Chromium	09/29/17 2:58 AM	Reported
47	N026114-006A	SAMP	1	Hexavalent Chromium	09/29/17 3:07 AM	Reported
48	N026114-006AMS	MS	1	Hexavalent Chromium	09/29/17 3:17 AM	Reported
49	N026114-007A	SAMP	1	Hexavalent Chromium	09/29/17 3:26 AM	Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	09/29/17 3:36 AM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	09/29/17 3:45 AM	Reported
52	N026114-007AMS	MS	1	Hexavalent Chromium	09/29/17 3:55 AM	Reported
53	N026114-009A	SAMP	1	Hexavalent Chromium	09/29/17 4:04 AM	Reported
54	N026114-009AMS	MS	1	Hexavalent Chromium	09/29/17 4:14 AM	Reported
55	N026114-008A	SAMP	2000	Hexavalent Chromium	09/29/17 4:23 AM	Reported
56	N026114-008AMS	MS	2000	Hexavalent Chromium	09/29/17 4:33 AM	Reported
57	N026134-001A	SAMP	1	Hexavalent Chromium	09/29/17 4:42 AM	Not Reported
58	N026134-001AMS	MS	1	Hexavalent Chromium	09/29/17 4:52 AM	Not Reported
59	N026134-003A	SAMP	5	Hexavalent Chromium	09/29/17 5:01 AM	Reported
60	N026134-003AMS	MS	5	Hexavalent Chromium	09/29/17 5:10 AM	Reported
61	N026134-005A	SAMP	1	Hexavalent Chromium	09/29/17 5:20 AM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	09/29/17 5:29 AM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	09/29/17 5:39 AM	Reported
64	N026134-005AMS	MS	1	Hexavalent Chromium	09/29/17 5:48 AM	Reported
65	N026134-002A	SAMP	1	Hexavalent Chromium	09/29/17 5:58 AM	Reported
66	N026134-002AMS	MS	1	Hexavalent Chromium	09/29/17 6:07 AM	Reported
67	N026134-004A	SAMP	1	Hexavalent Chromium	09/29/17 6:17 AM	Reported
68	N026134-004AMS	MS	1	Hexavalent Chromium	09/29/17 6:26 AM	Reported
69	N026134-002A	SAMP	5	Hexavalent Chromium	09/29/17 6:36 AM	Not Reported
70	N026134-002AMS	MS	5	Hexavalent Chromium	09/29/17 6:45 AM	Not Reported
71	N026134-004A	SAMP	5	Hexavalent Chromium	09/29/17 6:55 AM	Not Reported
72	N026134-004AMS	MS	5	Hexavalent Chromium	09/29/17 7:04 AM	Not Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	09/29/17 7:13 AM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	09/29/17 7:23 AM	Reported
75	N026134-001A	SAMP	5	Hexavalent Chromium	09/29/17 7:32 AM	Reported
76	N026134-001AMS	MS	5	Hexavalent Chromium	09/29/17 7:42 AM	Reported
77	CCV-7	CCV	1	Hexavalent Chromium	09/29/17 7:51 AM	Reported
78	CCB-7	CCB	1	Hexavalent Chromium	09/29/17 8:01 AM	Reported

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 9/27/17
Time Prepared: 09:40 PM
Prepared By: RBA

Slope: 98.42
pH 4: 4.02 @ 25.9°C
7: 6.99 @ 25.9°C
10: 9.98 @ 25.9°C
LL: 6.97 @ 26.2°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: 1470927C
NH4OH + NH4SO4 buffer: R170921A

6N NaOH: R170809A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026114-001A	9.39	–	~250 mL	~250 mL		R170921A
2)	2A	9.14	9.34			+2 drops 6N NaOH	
3)	3A	9.13	9.45			+4 "	
4)	4A	9.20	9.43			+3 "	
5)	5A	9.32	–				
6)	6A	9.40	–				
7)	7A	9.35	–				
8)	8A	9.25	9.41			+2 "	
9)	9A	9.43	–				
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 9/28/17
Time Prepared: 2201
Prepared By: RBA

Slope: 97.37
pH 4: 3.95 @ 21.5°C
7: 7.01 @ 21.4°C
10: 10.02 @ 21.6°C
LL: 6.98 @ 21.9°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: R170929C
NH4OH + NH4SO4 buffer: R170921A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026134-001A	9.42	–	~250 mL	~250 mL		
2)	2A	9.40	–				
3)	3A	9.39	–				
4)	4A	9.52	–				
5)	5A	9.59	–				
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/5/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2580	1.2987	2.5943	3.9068	5.1811	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-170817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ICV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2777659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.943	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2777660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.191	0.20	0.2000	0	95.2	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.028	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.178	0.20	0.2000	0	89.2	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.029	0.20	10.00	0	100	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.094	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.166	0.20	10.00	0	102	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.023	0.20	5.000	0	100	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.192	0.20	10.00	0	102	95	105				

Sample ID **CCV-7**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.096	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ICB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2777661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777696**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/28/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.065	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.065	
Actual RT Window	3.985 - 4.145	
Applied RT Window	3.865 - 4.265	
MB-R118231	N.A.	N.A.
LCS-R118231	4.065	PASS
N026114-001A	N.A.	N.A.
N026114-001AMS	4.006	PASS
N026114-001AMS	4.006	PASS
N026114-001A	N.A.	N.A.
N026114-001AMS	N.A.	N.A.
N026114-003A	4.065	PASS
N026114-003AMS	4.065	PASS
N026114-003ADUP	4.065	PASS
N026153-007C	N.A.	N.A.
N026153-006C	4.048	PASS
N026153-003C	N.A.	N.A.
N026153-004C	4.040	PASS
N026153-007CREP	4.048	PASS
N026153-006CREP	4.048	PASS
N026153-003CREP	N.A.	N.A.
N026153-004C	4.065	PASS
N026153-004CREP	4.065	PASS
N026153-007CREP	N.A.	N.A.
N026114-003AMSD	4.056	PASS
N026114-002A	4.056	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/28/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.065	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.065	
Actual RT Window	3.985 - 4.145	
Applied RT Window	3.865 - 4.265	
N026114-002AMS	4.065	PASS
N026114-004A	4.065	PASS
N026114-004AMS	4.065	PASS
N026114-005A	4.040	PASS
N026114-005AMS	4.048	PASS
N026114-006A	4.048	PASS
N026114-006AMS	4.048	PASS
N026114-007A	4.048	PASS
N026114-007AMS	4.048	PASS
N026114-009A	N.A.	N.A.
N026114-009AMS	4.056	PASS
N026114-008A	4.065	PASS
N026114-008AMS	4.065	PASS
N026134-001A	3.915	PASS
N026134-001AMS	3.915	PASS
N026134-003A	4.031	PASS
N026134-003AMS	4.031	PASS
N026134-005A	N.A.	N.A.
N026134-005AMS	4.065	PASS
N026134-002A	3.890	PASS
N026134-002AMS	3.873	PASS
N026134-004A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/28/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.065	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.065	
Actual RT Window	3.985 - 4.145	
Applied RT Window	3.865 - 4.265	
N026134-004AMS	3.656	FAIL
N026134-002A	4.040	PASS
N026134-002AMS	4.023	PASS
N026134-004A	4.015	PASS
N026134-004AMS	4.015	PASS
N026134-001A	4.040	PASS
N026134-001AMS	4.040	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

INITIAL CALIBRATION



RAW DATA

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported

rba 9/7/2017

9/12/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

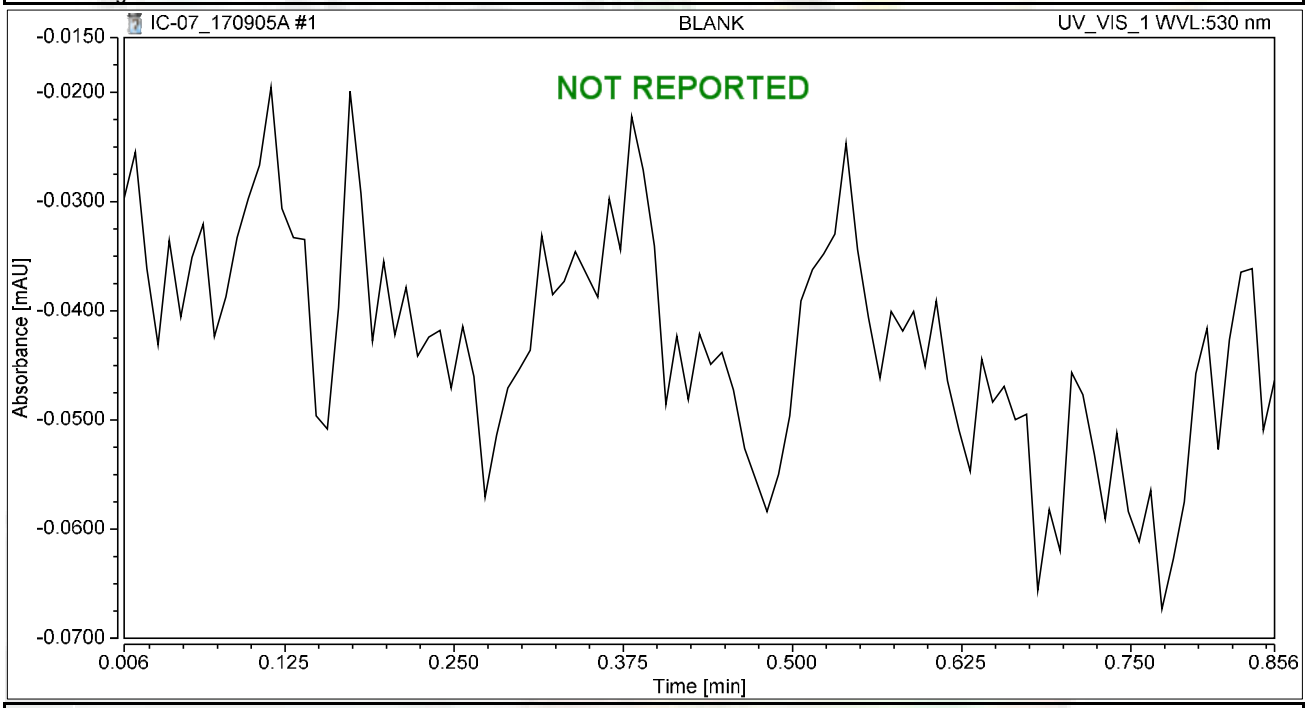
rba 9/7/2017

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.85**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 08:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

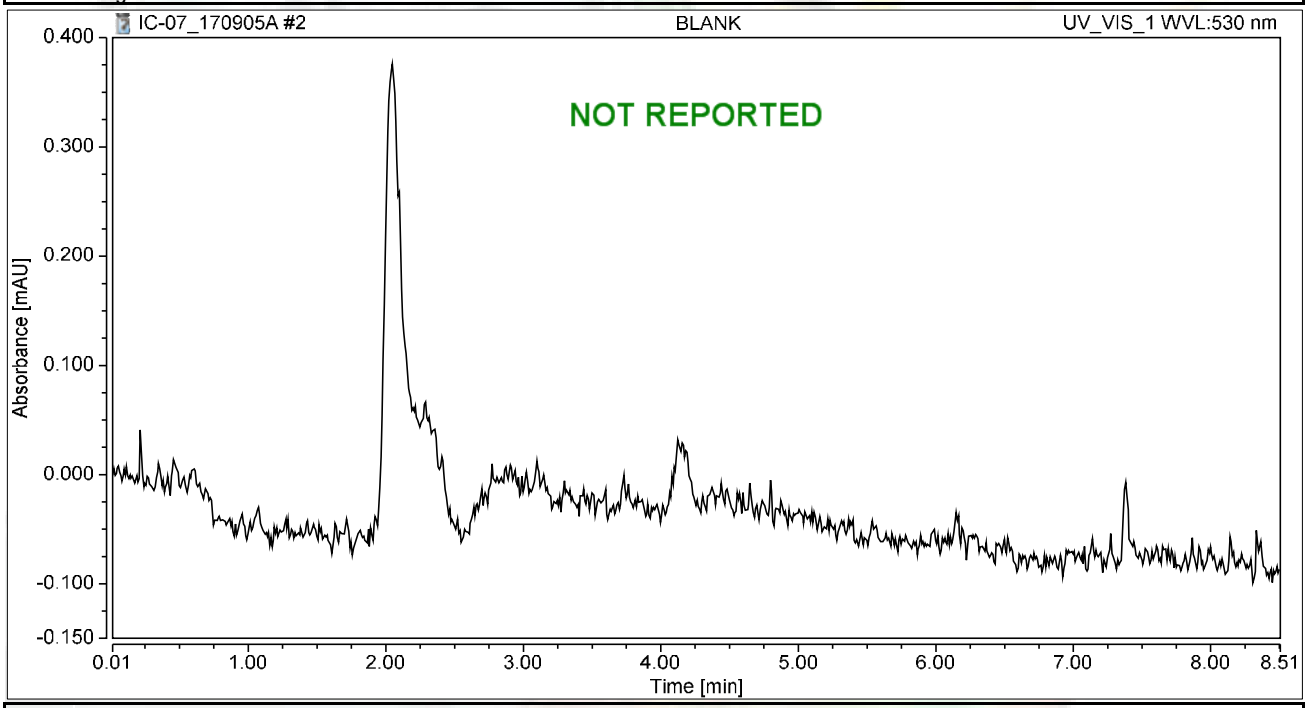
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

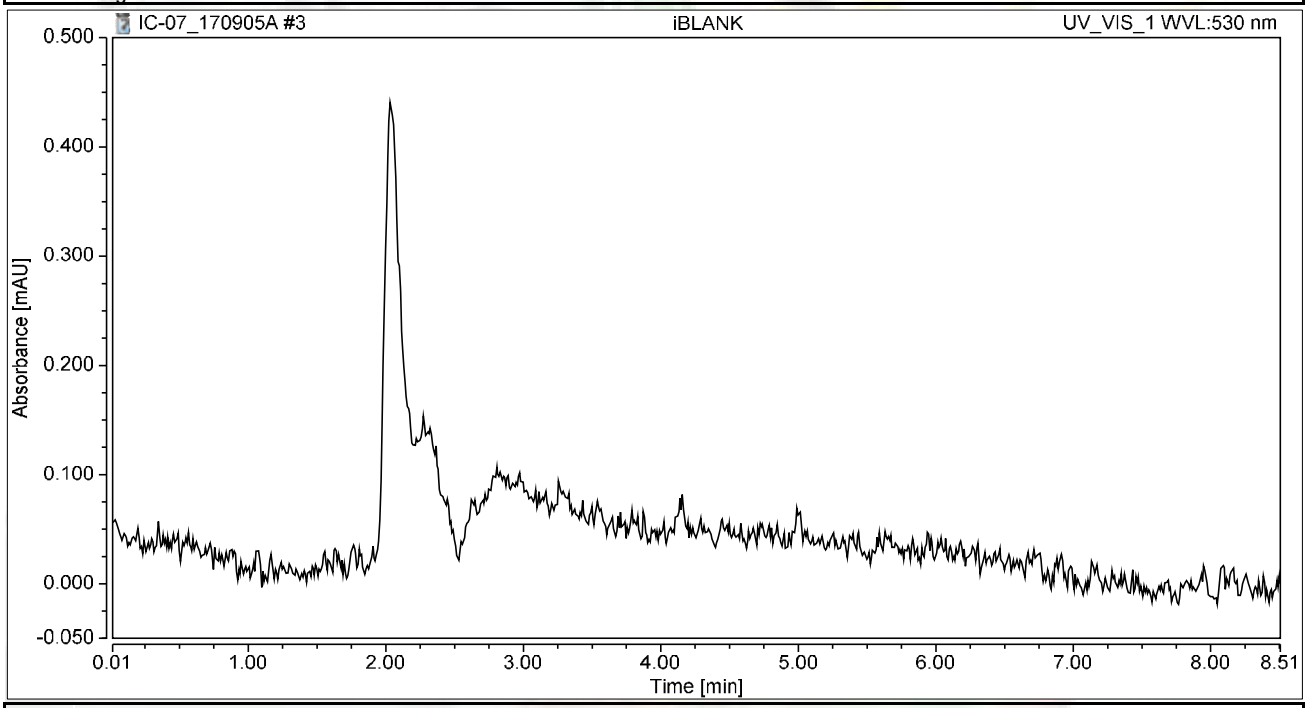
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

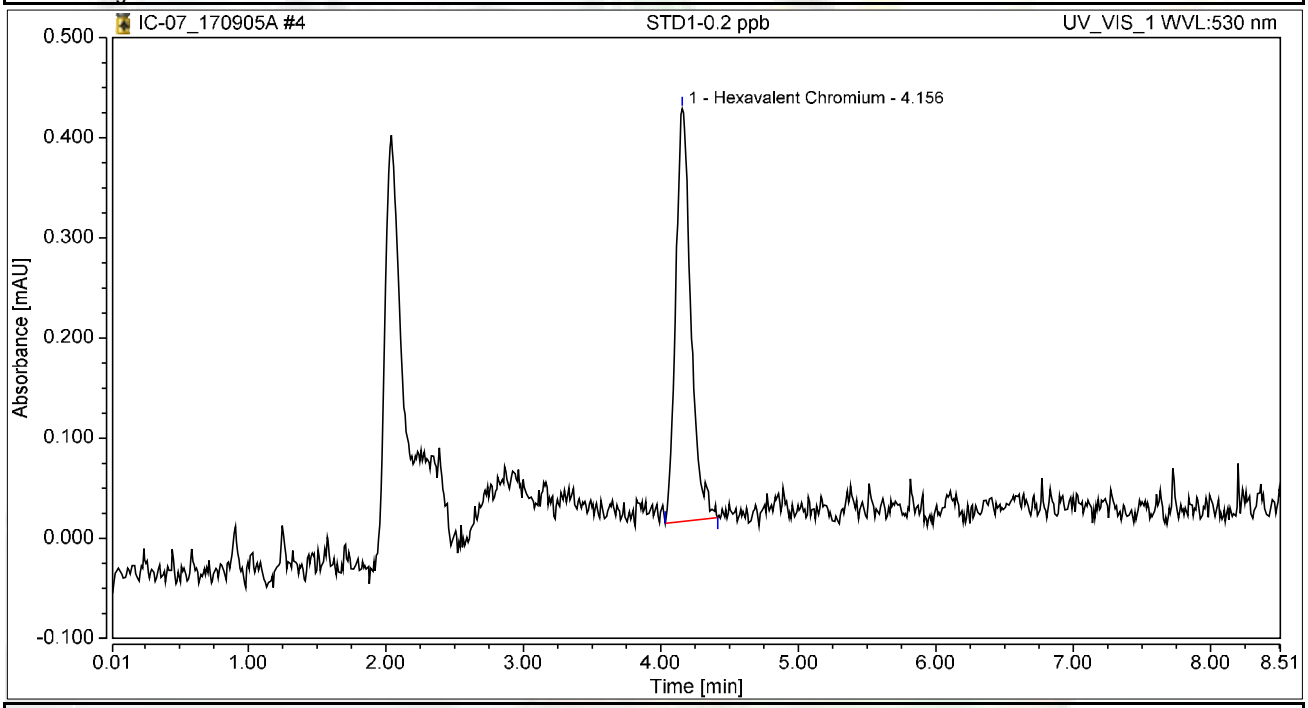
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

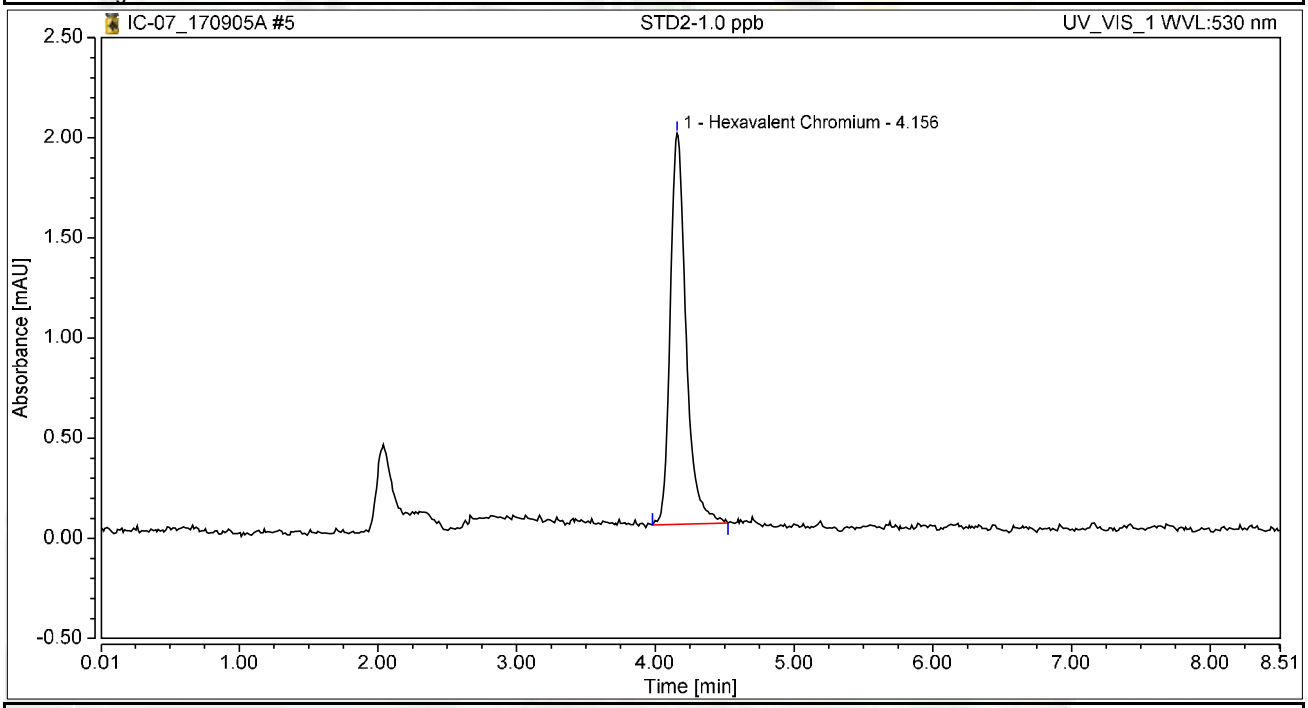
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.053	0.412	100.00	100.00	0.2029
Total:			**0.053**	**0.412**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

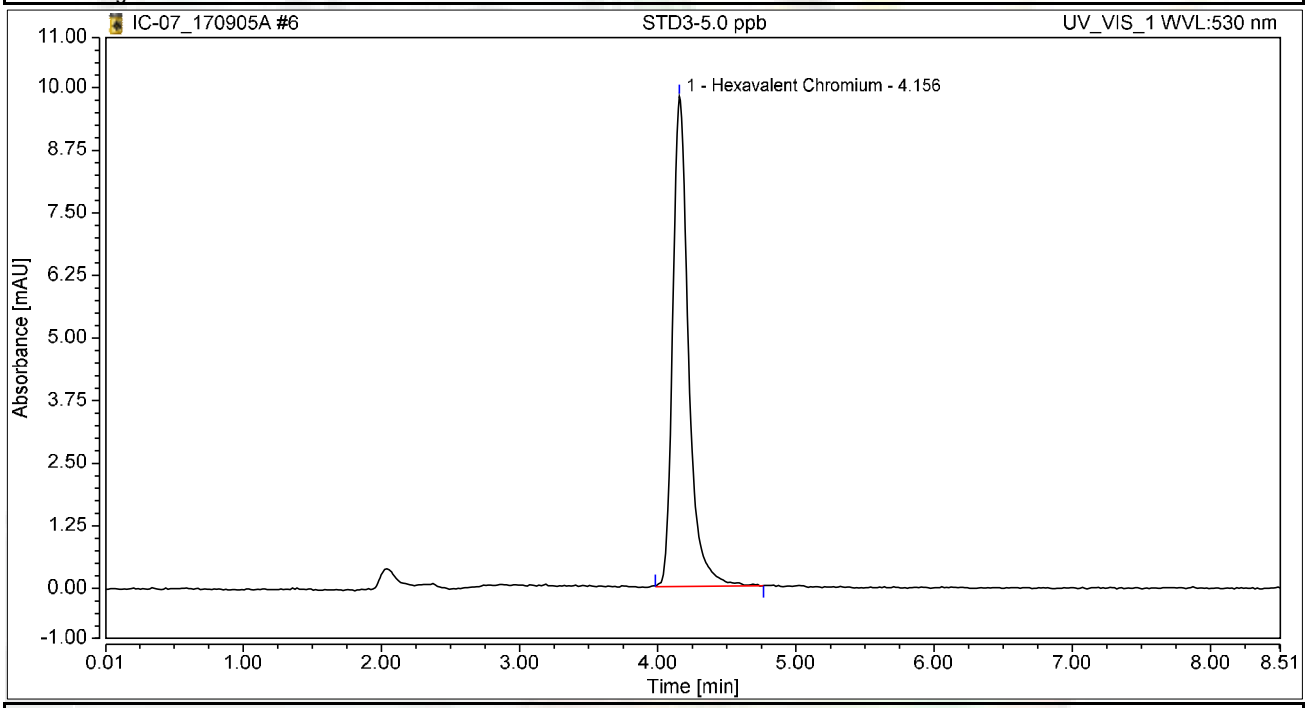
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.258	1.952	100.00	100.00	0.9942
Total:			**0.258**	**1.952**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

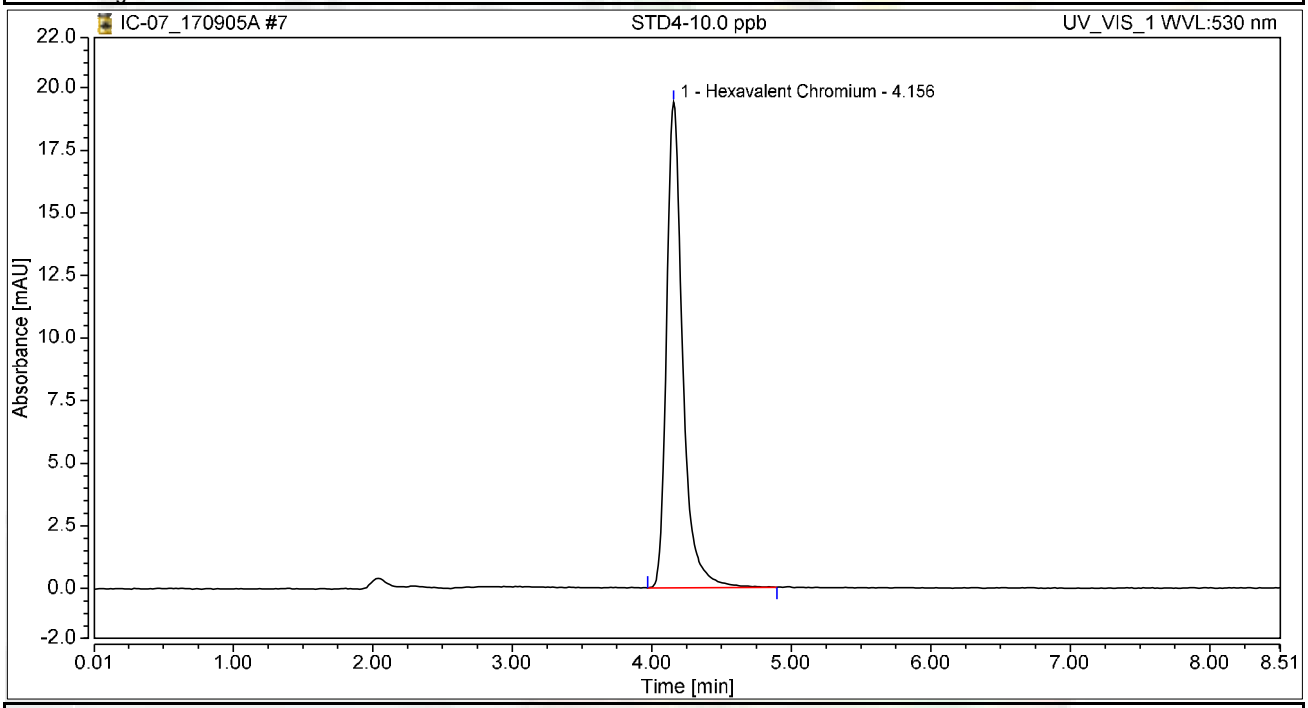
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.299	9.782	100.00	100.00	5.0039
Total:			**1.299**	**9.782**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

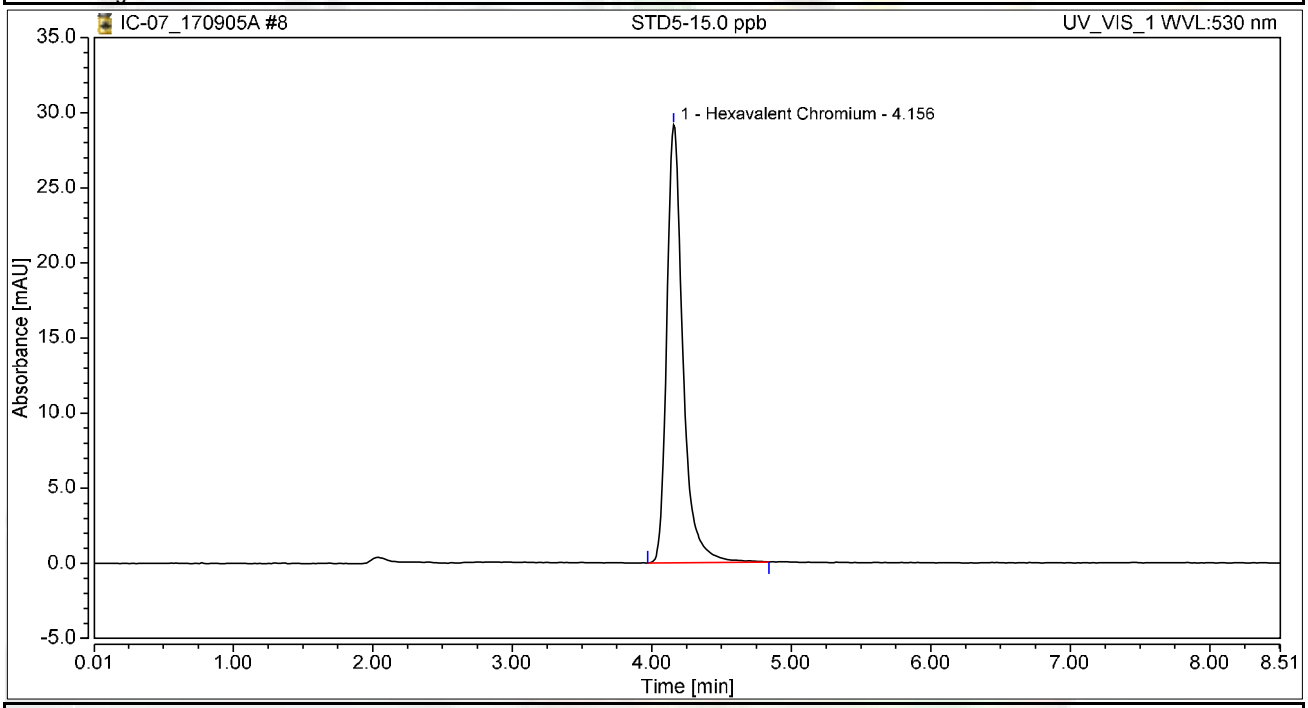
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	2.594	19.389	100.00	100.00	9.9955
Total:			**2.594**	**19.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

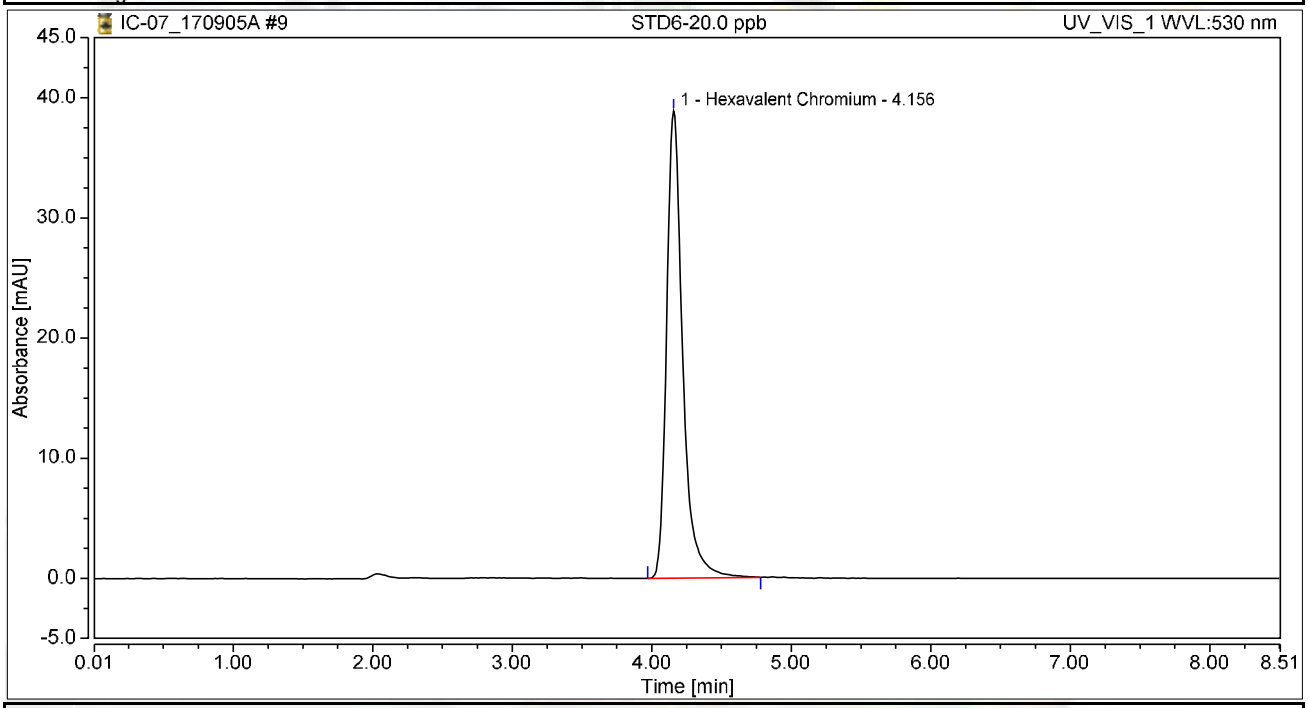
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	3.907	29.134	100.00	100.00	15.0524
Total:			**3.907**	**29.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:25**	*Sample Weight:*	**1.0000**

Chromatogram



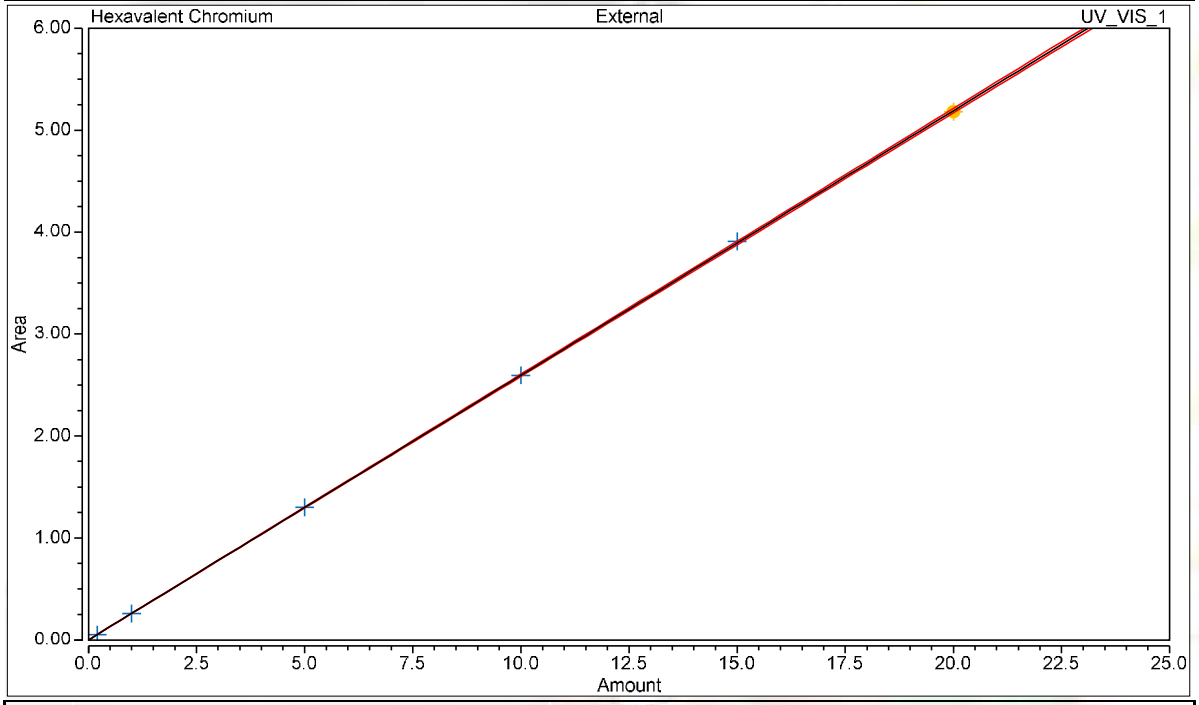
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	5.181	38.869	100.00	100.00	19.9622
Total:			**5.181**	**38.869**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

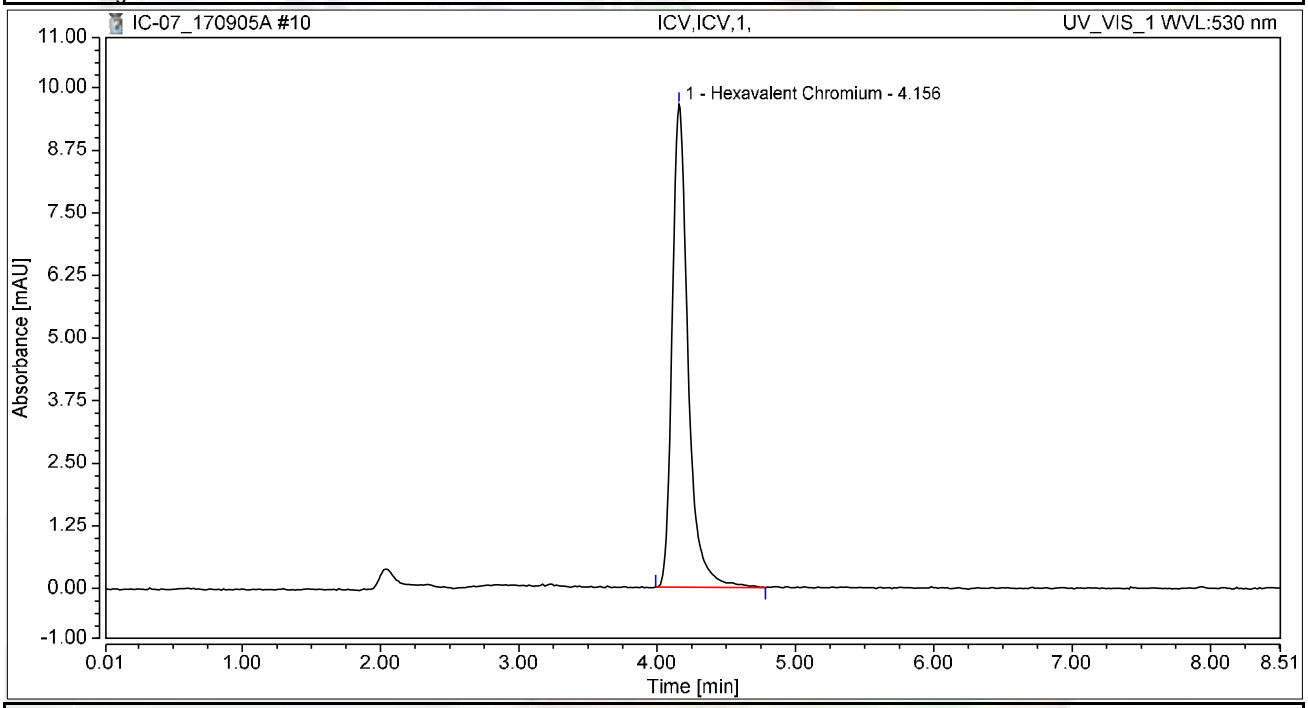
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.412
5	STD2-1.0 ppb	02	1.0000	0.2580	0.258	1.952
6	STD3-5.0 ppb	03	5.0000	1.2987	1.299	9.782
7	STD4-10.0 ppb	04	10.0000	2.5943	2.594	19.389
8	STD5-15.0 ppb	05	15.0000	3.9068	3.907	29.134
9	STD6-20.0 ppb	06	20.0000	5.1811	5.181	38.869

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

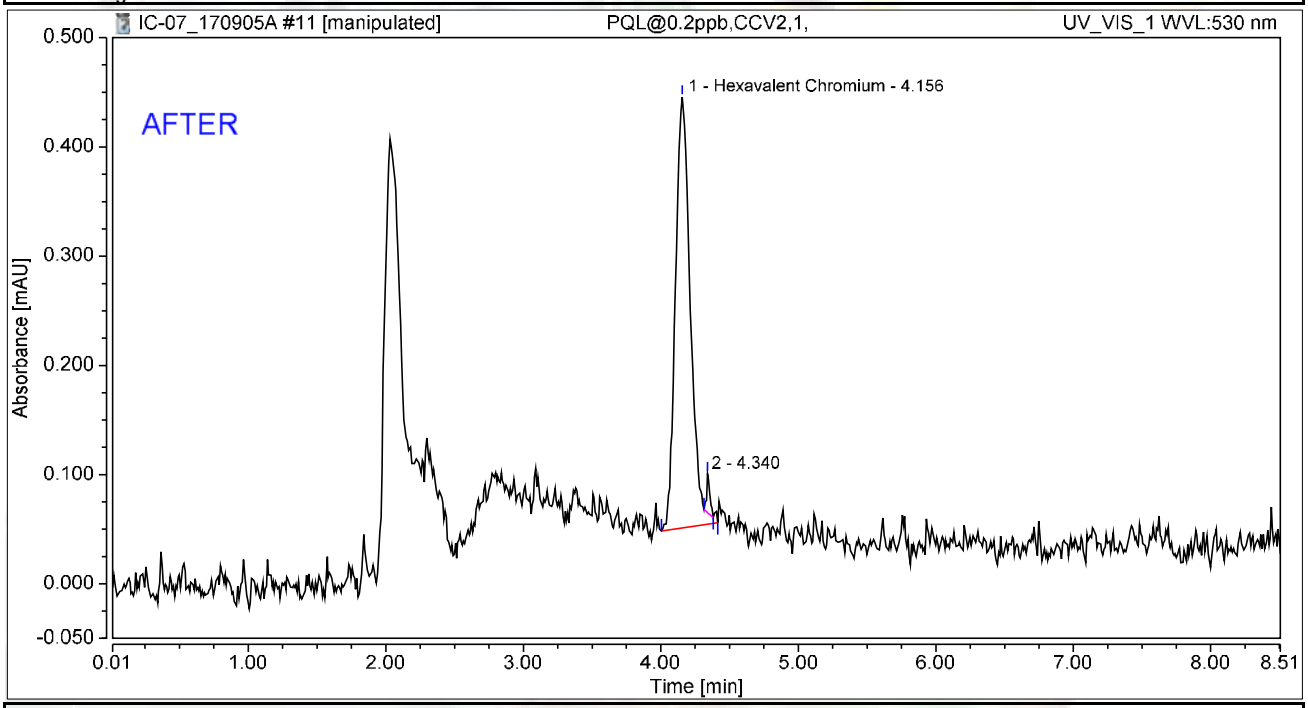
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.283	9.638	100.00	100.00	4.9425
Total:			**1.283**	**9.638**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.049	0.394	97.99	91.72	0.1905
2		4.340	0.001	0.036	2.01	8.28	n.a.
Total:			**0.050**	**0.430**	**100.00**	**100.00**	

rba 9/7/2017

Reviewed by: 9/12/2017

My first report/Integration

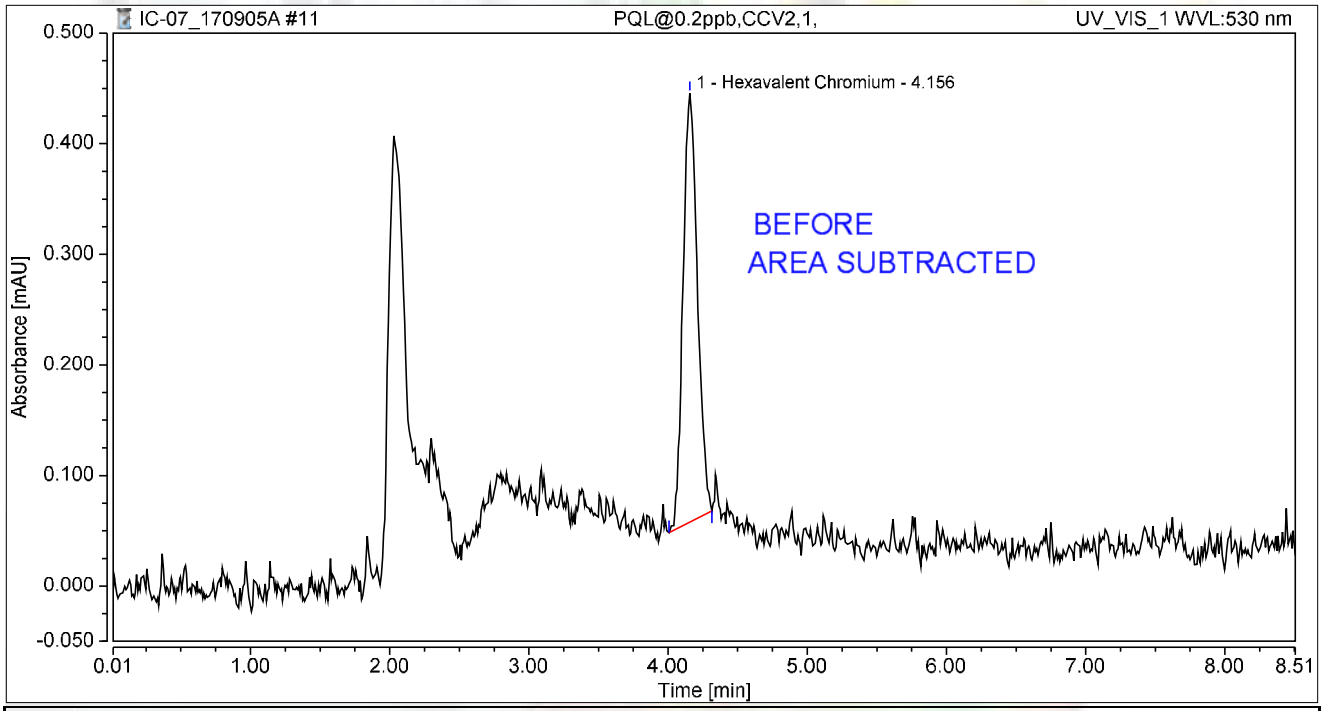
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.046	0.387	100.00	100.00	0.1788
Total:			**0.046**	**0.387**	**100.00**	**100.00**	

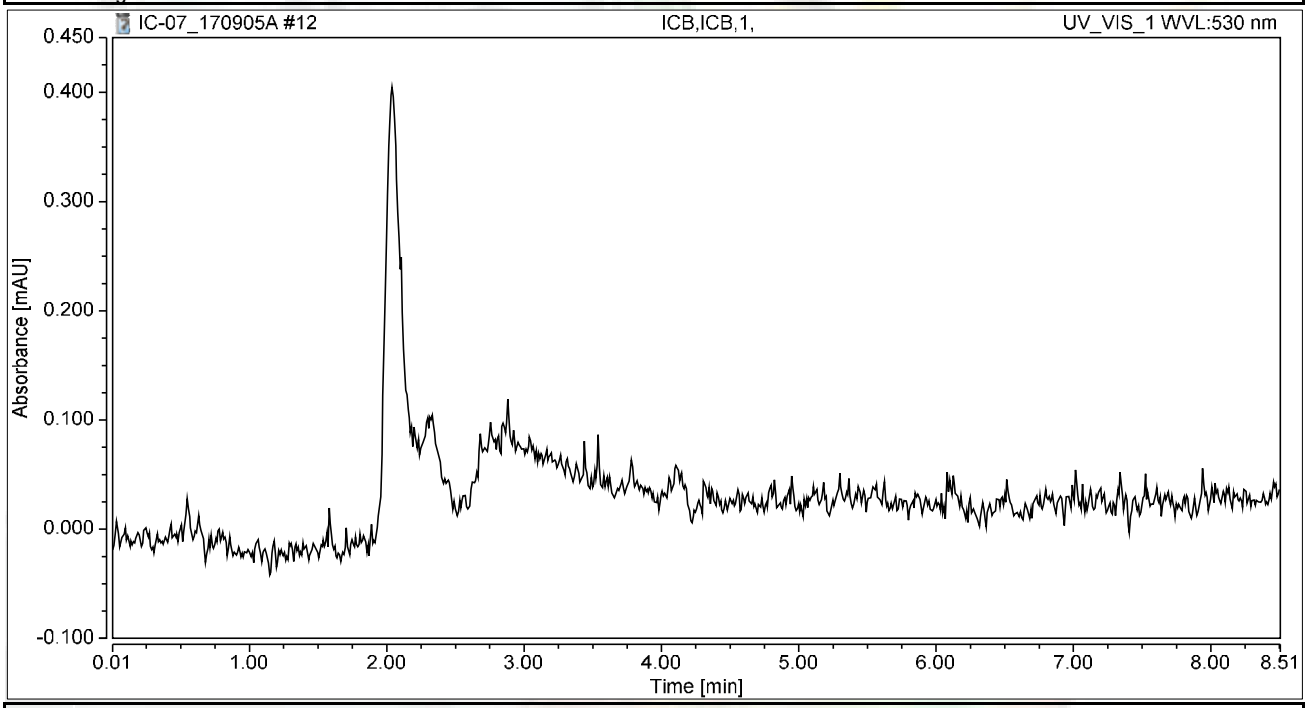
rba 9/7/2017

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:00 PM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:11 PM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/28/17 9:21 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/28/17 9:30 PM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/28/17 9:39 PM	Reported
15	MB-R118231	MBLK	1	Hexavalent Chromium	09/28/17 9:49 PM	Reported
16	LCS-R118231	LCS	1	Hexavalent Chromium	09/28/17 9:58 PM	Reported
17	N026114-001A	SAMP	5	Hexavalent Chromium	09/28/17 10:08 PM	Reported
18	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:17 PM	Reported
19	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:27 PM	Reported
20	N026114-001A	SAMP	1	Hexavalent Chromium	09/28/17 10:38 PM	Not Reported
21	N026114-001AMS	MS	1	Hexavalent Chromium	09/28/17 10:48 PM	Not Reported
22	N026114-003A	SAMP	100	Hexavalent Chromium	09/28/17 10:57 PM	Reported
23	N026114-003AMS	MS	100	Hexavalent Chromium	09/28/17 11:06 PM	Reported
24	N026114-003ADUP	DUP	100	Hexavalent Chromium	09/28/17 11:16 PM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/28/17 11:25 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/28/17 11:35 PM	Reported
27	N026153-007C	SAMP	1	Hexavalent Chromium	09/28/17 11:45 PM	Reported
28	N026153-006C	SAMP	1	Hexavalent Chromium	09/28/17 11:56 PM	Reported
29	N026153-003C	SAMP	1	Hexavalent Chromium	09/29/17 12:06 AM	Reported
30	N026153-004C	SAMP	1	Hexavalent Chromium	09/29/17 12:15 AM	Not Reported
31	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 12:25 AM	Not Reported
32	N026153-006CREP	DUP	1	Hexavalent Chromium	09/29/17 12:34 AM	Reported
33	N026153-003CREP	DUP	1	Hexavalent Chromium	09/29/17 12:44 AM	Reported
34	N026153-004C	SAMP	100	Hexavalent Chromium	09/29/17 12:53 AM	Reported
35	N026153-004CREP	DUP	100	Hexavalent Chromium	09/29/17 1:02 AM	Reported
36	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 1:12 AM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	09/29/17 1:21 AM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:31 AM	Not Reported
39	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:48 AM	Reported
40	N026114-003AMSD	MSD	100	Hexavalent Chromium	09/29/17 1:59 AM	Reported
41	N026114-002A	SAMP	20	Hexavalent Chromium	09/29/17 2:08 AM	Reported
42	N026114-002AMS	MS	20	Hexavalent Chromium	09/29/17 2:18 AM	Reported

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026114-004A	SAMP	50	Hexavalent Chromium	09/29/17 2:28 AM	Reported
44	N026114-004AMS	MS	50	Hexavalent Chromium	09/29/17 2:39 AM	Reported
45	N026114-005A	SAMP	1	Hexavalent Chromium	09/29/17 2:49 AM	Reported
46	N026114-005AMS	MS	1	Hexavalent Chromium	09/29/17 2:58 AM	Reported
47	N026114-006A	SAMP	1	Hexavalent Chromium	09/29/17 3:07 AM	Reported
48	N026114-006AMS	MS	1	Hexavalent Chromium	09/29/17 3:17 AM	Reported
49	N026114-007A	SAMP	1	Hexavalent Chromium	09/29/17 3:26 AM	Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	09/29/17 3:36 AM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	09/29/17 3:45 AM	Reported
52	N026114-007AMS	MS	1	Hexavalent Chromium	09/29/17 3:55 AM	Reported
53	N026114-009A	SAMP	1	Hexavalent Chromium	09/29/17 4:04 AM	Reported
54	N026114-009AMS	MS	1	Hexavalent Chromium	09/29/17 4:14 AM	Reported
55	N026114-008A	SAMP	2000	Hexavalent Chromium	09/29/17 4:23 AM	Reported
56	N026114-008AMS	MS	2000	Hexavalent Chromium	09/29/17 4:33 AM	Reported
57	N026134-001A	SAMP	1	Hexavalent Chromium	09/29/17 4:42 AM	Not Reported
58	N026134-001AMS	MS	1	Hexavalent Chromium	09/29/17 4:52 AM	Not Reported
59	N026134-003A	SAMP	5	Hexavalent Chromium	09/29/17 5:01 AM	Reported
60	N026134-003AMS	MS	5	Hexavalent Chromium	09/29/17 5:10 AM	Reported
61	N026134-005A	SAMP	1	Hexavalent Chromium	09/29/17 5:20 AM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	09/29/17 5:29 AM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	09/29/17 5:39 AM	Reported
64	N026134-005AMS	MS	1	Hexavalent Chromium	09/29/17 5:48 AM	Reported
65	N026134-002A	SAMP	1	Hexavalent Chromium	09/29/17 5:58 AM	NotReported
66	N026134-002AMS	MS	1	Hexavalent Chromium	09/29/17 6:07 AM	NotReported
67	N026134-004A	SAMP	1	Hexavalent Chromium	09/29/17 6:17 AM	NotReported
68	N026134-004AMS	MS	1	Hexavalent Chromium	09/29/17 6:26 AM	NotReported
69	N026134-002A	SAMP	5	Hexavalent Chromium	09/29/17 6:36 AM	~~Not~~ Reported
70	N026134-002AMS	MS	5	Hexavalent Chromium	09/29/17 6:45 AM	~~Not~~ Reported
71	N026134-004A	SAMP	5	Hexavalent Chromium	09/29/17 6:55 AM	~~Not~~ Reported
72	N026134-004AMS	MS	5	Hexavalent Chromium	09/29/17 7:04 AM	~~Not~~ Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	09/29/17 7:13 AM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	09/29/17 7:23 AM	Reported
75	N026134-001A	SAMP	5	Hexavalent Chromium	09/29/17 7:32 AM	Reported
76	N026134-001AMS	MS	5	Hexavalent Chromium	09/29/17 7:42 AM	Reported
77	CCV-7	CCV	1	Hexavalent Chromium	09/29/17 7:51 AM	Reported
78	CCB-7	CCB	1	Hexavalent Chromium	09/29/17 8:01 AM	Reported

rba 10/5/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170928A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**29/Sep/17 08:31:32**
No. of Injections:	**81**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/28/2017 21:00	Finished	BLANK
11	BLANK	2	1000	Unknown		09/28/2017 21:11	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/28/2017 21:21	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/28/2017 21:30	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/28/2017 21:39	Finished	CCB R170912A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/28/2017 21:49	Finished	MB R170912A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/28/2017 21:58	Finished	LCS, IWST-170622D
17	N026114-001A,SAMP	8	1000	Unknown		09/28/2017 22:08	Finished	SAMP,2>10mL
18	N026114-001AMS,MS	9	1000	Unknown		09/28/2017 22:17	Finished	MS (5ppb), IWST-170622D,2>1
19	N026114-001AMS,MS	10	1000	Unknown		09/28/2017 22:27	Finished	MS (1ppb), IWST-170622D,2>1
20	N026114-001A,SAMP	11	1000	Unknown		09/28/2017 22:38	Finished	SAMP,10mL
21	N026114-001AMS,MS	12	1000	Unknown		09/28/2017 22:48	Finished	MS (1ppb), IWST-170622D,10
22	N026114-003A,SAMP	13	1000	Unknown		09/28/2017 22:57	Finished	SAMP,0.1>10mL
23	N026114-003AMS,MS	14	1000	Unknown		09/28/2017 23:06	Finished	MS (5ppb), IWST-170622D,0.1
24	N026114-003ADUP,D	15	1000	Unknown		09/28/2017 23:16	Finished	DUP,0.1>10mL
25	CCV-2,CCV1,1,	16	1000	Unknown		09/28/2017 23:25	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		09/28/2017 23:35	Finished	CCB R170921A
27	N026153-007C,SAMP	19	1000	Unknown		09/28/2017 23:45	Finished	SAMP,10mL
28	N026153-006C,SAMP	20	1000	Unknown		09/28/2017 23:56	Finished	SAMP,10mL
29	N026153-003C,SAMP	21	1000	Unknown		09/29/2017 00:06	Finished	SAMP,10mL
30	N026153-004C,SAMP	22	1000	Unknown		09/29/2017 00:15	Finished	SAMP,10mL
31	N026153-007CREP,D	23	1000	Unknown		09/29/2017 00:25	Finished	REP,10mL
32	N026153-006CREP,D	24	1000	Unknown		09/29/2017 00:34	Finished	REP,10mL
33	N026153-003CREP,D	25	1000	Unknown		09/29/2017 00:44	Finished	REP,10mL
34	N026153-004C,SAMP	26	1000	Unknown		09/29/2017 00:53	Finished	SAMP,0.1>10mL
35	N026153-004CREP,D	27	1000	Unknown		09/29/2017 01:02	Finished	REP,0.1>10mL
36	N026153-007CREP,D	28	1000	Unknown		09/29/2017 01:12	Finished	REP,10mL
37	CCV-3,CCV,1,	29	1000	Unknown		09/29/2017 01:21	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		09/29/2017 01:31	Finished	CCB R170921A
39	CCB-3,CCB,1,	31	1000	Unknown		09/29/2017 01:48	Finished	CCB R170921A
40	N026114-003AMSD,M	32	1000	Unknown		09/29/2017 01:59	Finished	MSD (5ppb), IWST-170622D,0.
41	N026114-002A,SAMP	33	1000	Unknown		09/29/2017 02:08	Finished	SAMP,0.5>10mL
42	N026114-002AMS,MS	34	1000	Unknown		09/29/2017 02:18	Finished	MS (5ppb), IWST-170622D,0.5
43	N026114-004A,SAMP	1	1000	Unknown		09/29/2017 02:28	Finished	SAMP,0.2>10mL
44	N026114-004AMS,MS	2	1000	Unknown		09/29/2017 02:39	Finished	MS (5ppb), IWST-170622D,0.2
45	N026114-005A,SAMP	3	1000	Unknown		09/29/2017 02:49	Finished	SAMP,10mL
46	N026114-005AMS,MS	4	1000	Unknown		09/29/2017 02:58	Finished	MS (1ppb), IWST-170622D,10
47	N026114-006A,SAMP	5	1000	Unknown		09/29/2017 03:07	Finished	SAMP,10mL
48	N026114-006AMS,MS	6	1000	Unknown		09/29/2017 03:17	Finished	MS (1ppb), IWST-170622D,10
49	N026114-007A,SAMP	7	1000	Unknown		09/29/2017 03:26	Finished	SAMP,10mL
50	CCV-4,CCV1,1,	8	1000	Unknown		09/29/2017 03:36	Finished	CCV @10ppb, IWST-170622C
51	CCB-4,CCB,1,	9	1000	Unknown		09/29/2017 03:45	Finished	CCB R170921A
52	N026114-007AMS,MS	10	1000	Unknown		09/29/2017 03:55	Finished	MS (1ppb), IWST-170622D,10
53	N026114-009A,SAMP	11	1000	Unknown		09/29/2017 04:04	Finished	SAMP,10mL
54	N026114-009AMS,MS	12	1000	Unknown		09/29/2017 04:14	Finished	MS (1ppb), IWST-170622D,10
55	N026114-008A,SAMP	13	1000	Unknown		09/29/2017 04:23	Finished	SAMP,0.005>10mL
56	N026114-008AMS,MS	14	1000	Unknown		09/29/2017 04:33	Finished	MS (5ppb), IWST-170622D,0.0
57	N026134-001A,SAMP	15	1000	Unknown		09/29/2017 04:42	Finished	SAMP,10mL
58	N026134-001AMS,MS	16	1000	Unknown		09/29/2017 04:52	Finished	MS (5ppb), IWST-170622D,10
59	N026134-003A,SAMP	17	1000	Unknown		09/29/2017 05:01	Finished	SAMP,2>10mL
60	N026134-003AMS,MS	18	1000	Unknown		09/29/2017 05:10	Finished	MS (5ppb), IWST-170622D,2>1

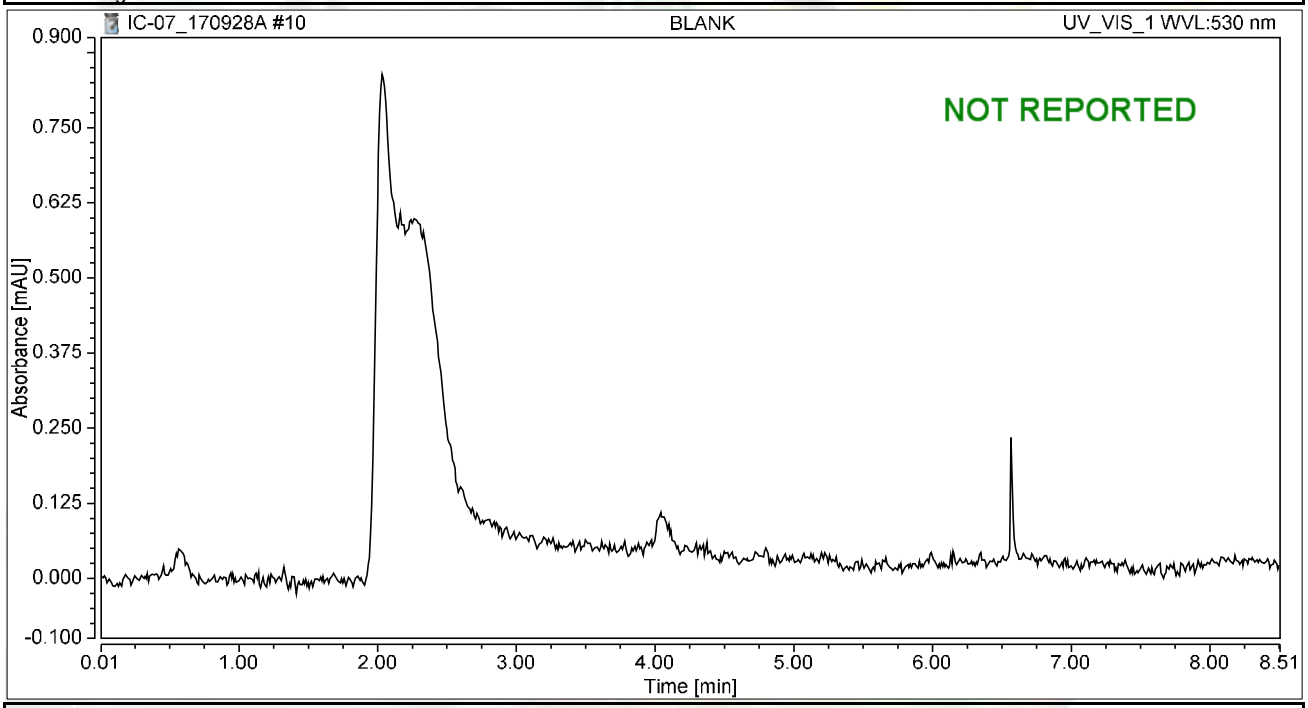
61	N026134-005A,SAMP	19	1000	Unknown		09/29/2017 05:20	Finished	SAMP,10mL
62	CCV-5,CCV,1,	20	1000	Unknown		09/29/2017 05:29	Finished	CCV @5ppb, IWST-170622C
63	CCB-5,CCB,1,	21	1000	Unknown		09/29/2017 05:39	Finished	CCB R170921A
64	N026134-005AMS,MS	22	1000	Unknown		09/29/2017 05:48	Finished	MS (1ppb), IWST-170622D,10
65	N026134-002A,SAMP	23	1000	Unknown		09/29/2017 05:58	Finished	SAMP,10mL
66	N026134-002AMS,MS	24	1000	Unknown		09/29/2017 06:07	Finished	MS (1ppb), IWST-170622D,10
67	N026134-004A,SAMP	25	1000	Unknown		09/29/2017 06:17	Finished	SAMP,10mL
68	N026134-004AMS,MS	26	1000	Unknown		09/29/2017 06:26	Finished	MS (1ppb), IWST-170622D,10
69	N026134-002A,SAMP	27	1000	Unknown		09/29/2017 06:36	Finished	SAMP,2>10mL
70	N026134-002AMS,MS	28	1000	Unknown		09/29/2017 06:45	Finished	MS (1ppb), IWST-170622D,2>1
71	N026134-004A,SAMP	29	1000	Unknown		09/29/2017 06:55	Finished	SAMP,2>10mL
72	N026134-004AMS,MS	30	1000	Unknown		09/29/2017 07:04	Finished	MS (1ppb), IWST-170622D,2>1
73	CCV-6,CCV1,1,	31	1000	Unknown		09/29/2017 07:13	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	32	1000	Unknown		09/29/2017 07:23	Finished	CCB R170921A
75	N026134-001A,SAMP	33	1000	Unknown		09/29/2017 07:32	Finished	SAMP,2>10mL
76	N026134-001AMS,MS	34	1000	Unknown		09/29/2017 07:42	Finished	MS (5ppb), IWST-170622D,2>1
77	CCV-7,CCV,1,	35	1000	Unknown		09/29/2017 07:51	Finished	CCV @10ppb, IWST-170622C
78	CCB-7,CCB,1,	36	1000	Unknown		09/29/2017 08:01	Finished	CCB R170921A
79	SHUTDOWN	37	1000	Unknown		09/29/2017 08:10	Finished	
80	Eluent: R170927C	38	1000	Unknown		n.a.	Finished	Eluent
81	PCR: R170926A	39	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

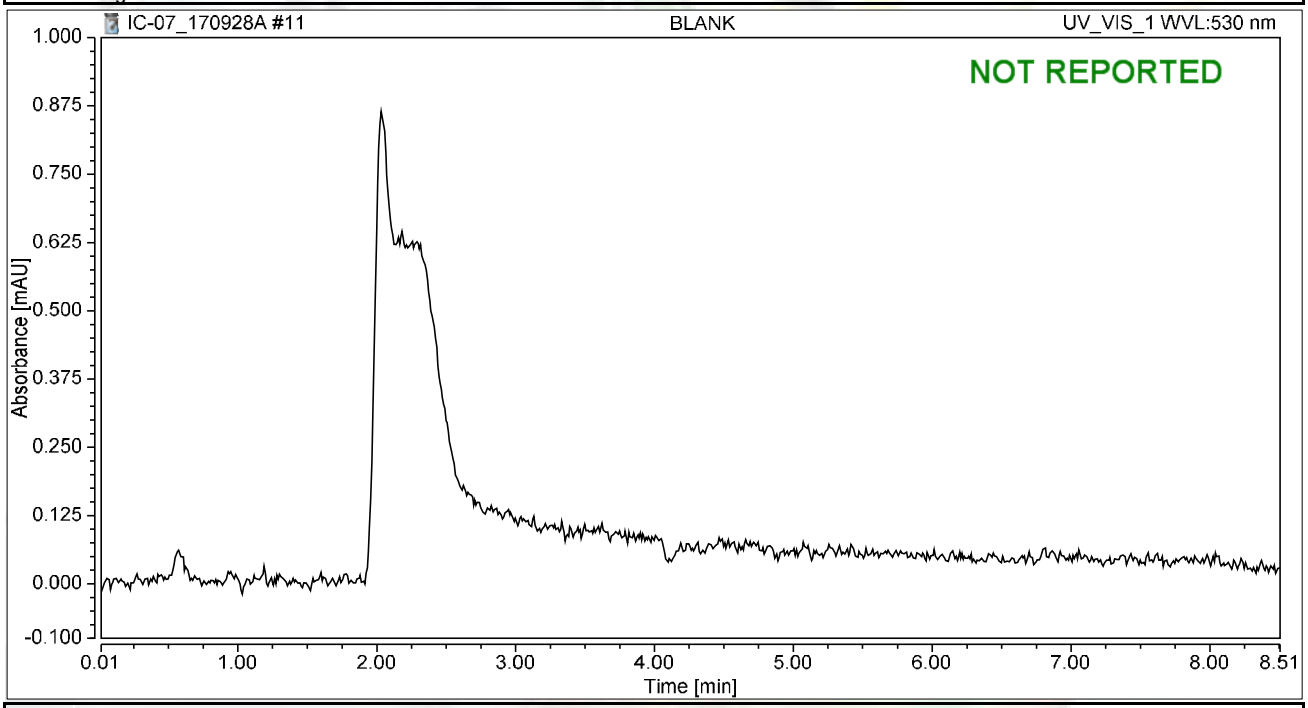
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

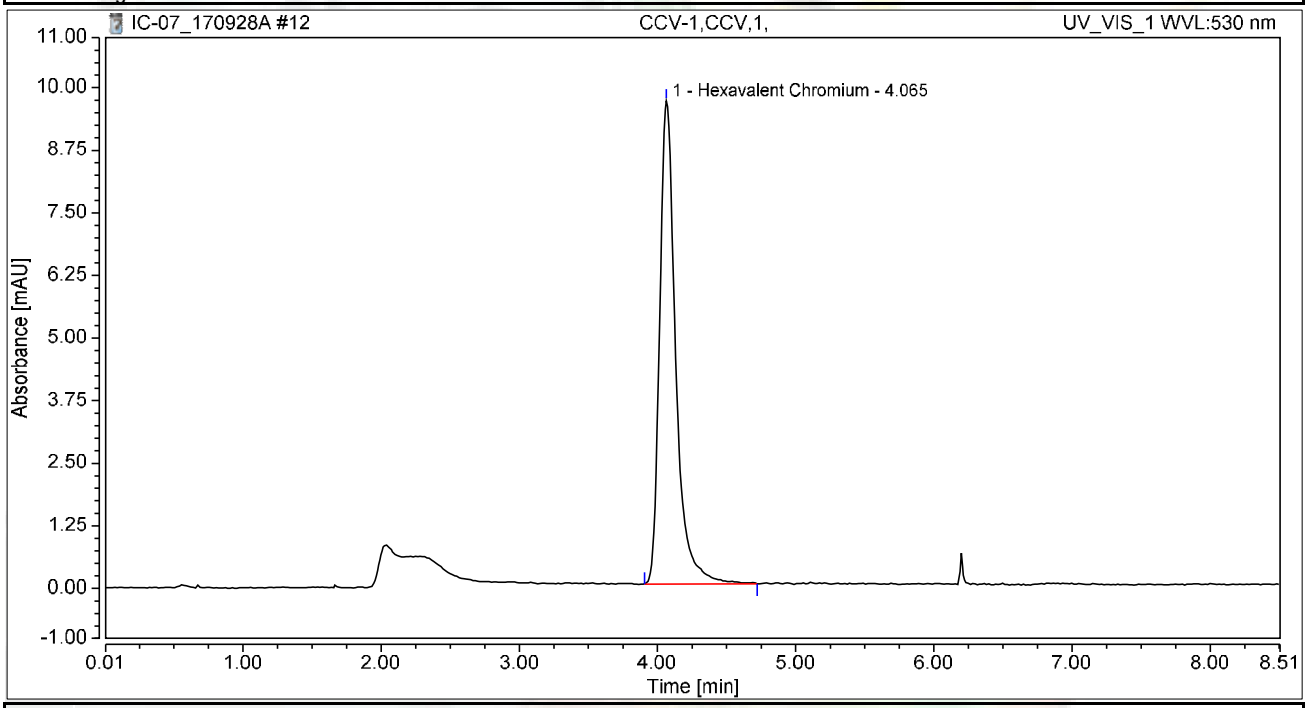
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

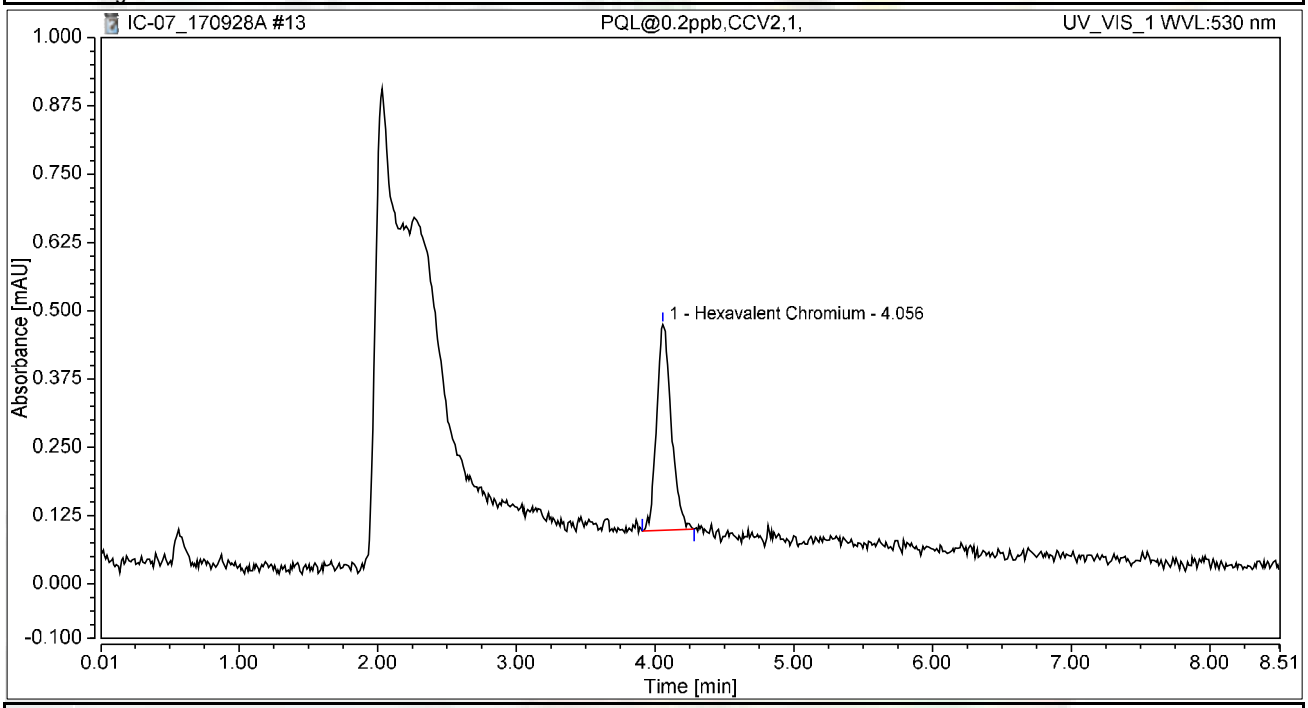
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.305	9.648	100.00	100.00	5.0275
Total:			**1.305**	**9.648**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

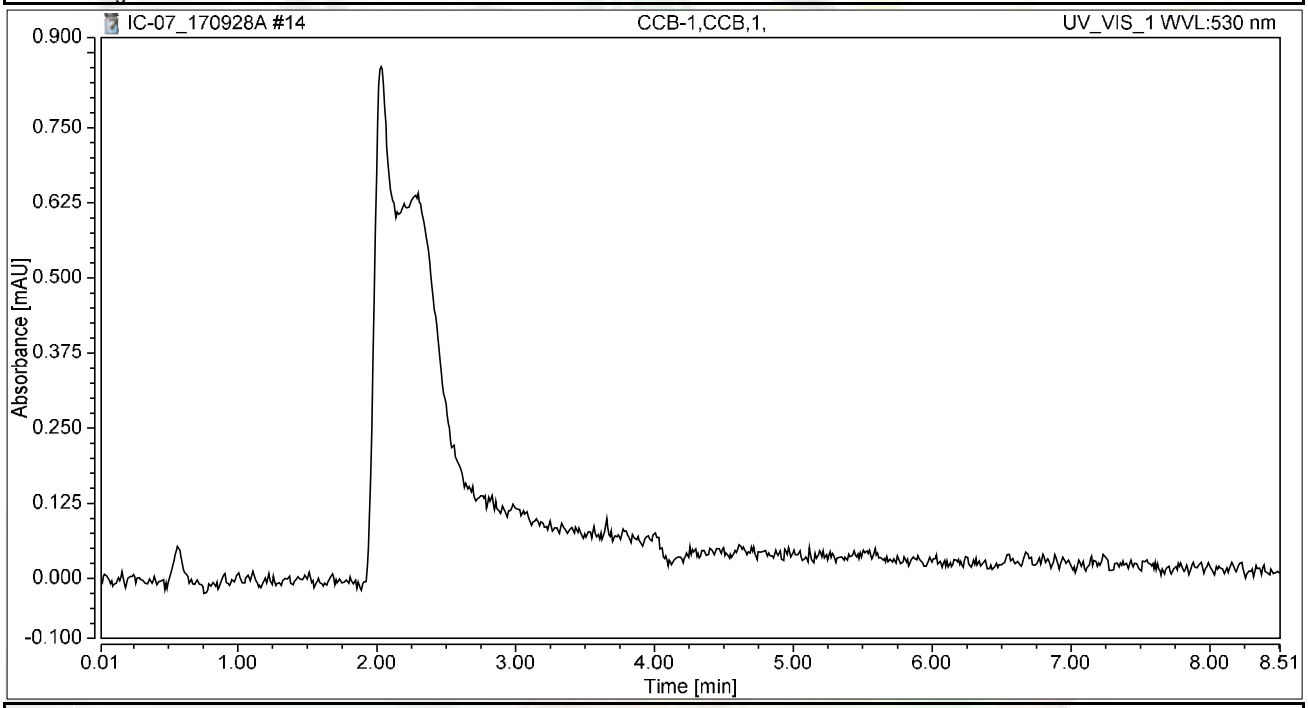
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.046	0.377	100.00	100.00	0.1784
Total:			**0.046**	**0.377**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

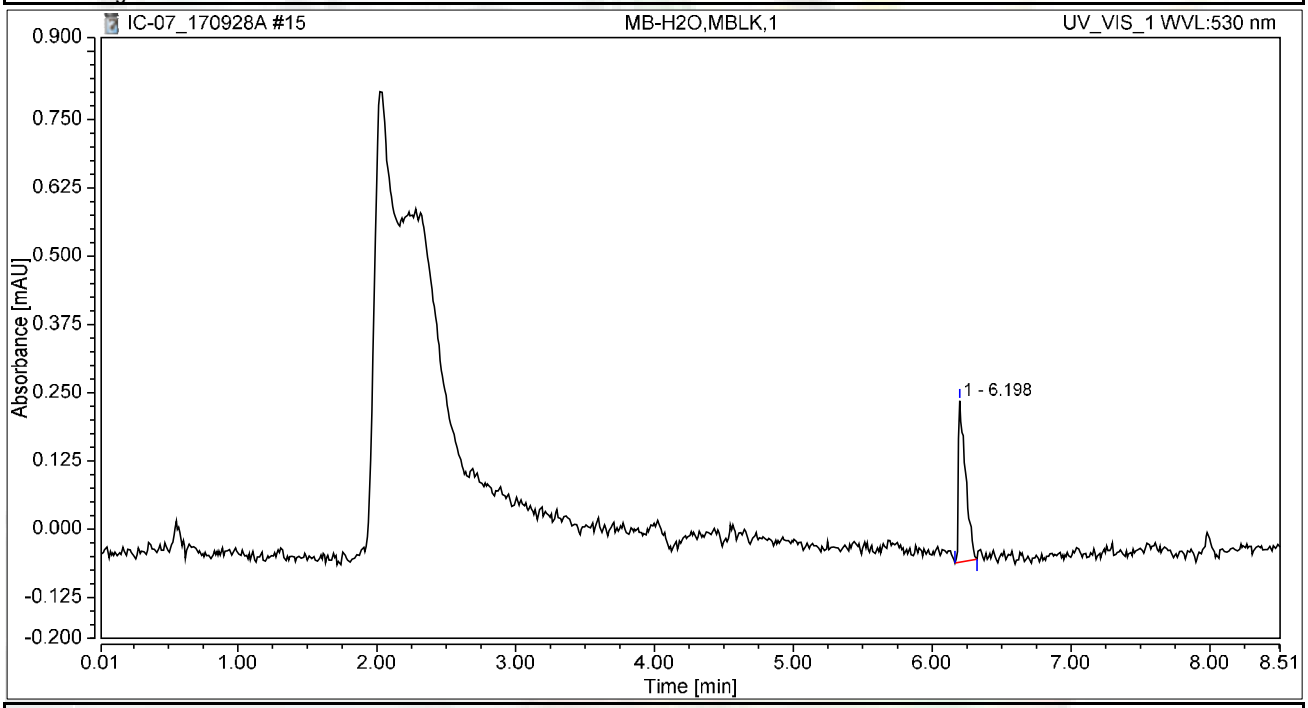
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

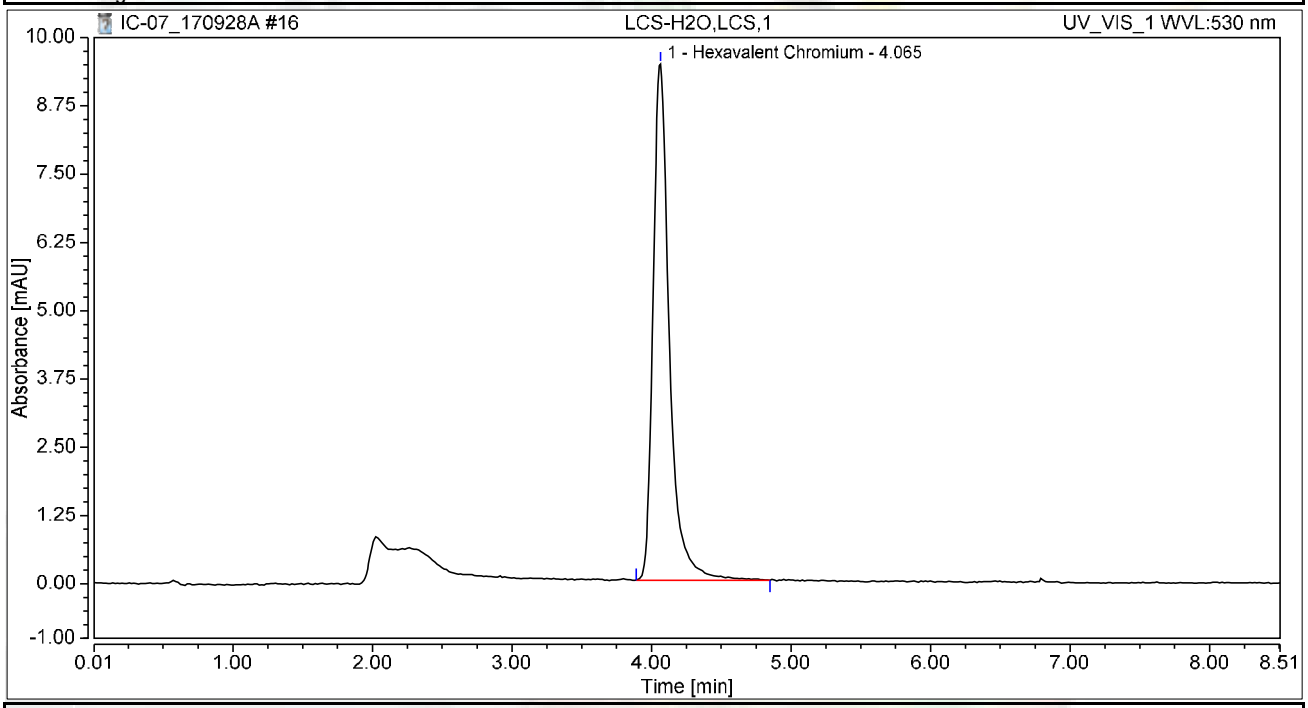
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.198	0.018	0.295	100.00	100.00	n.a.
Total:			**0.018**	**0.295**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

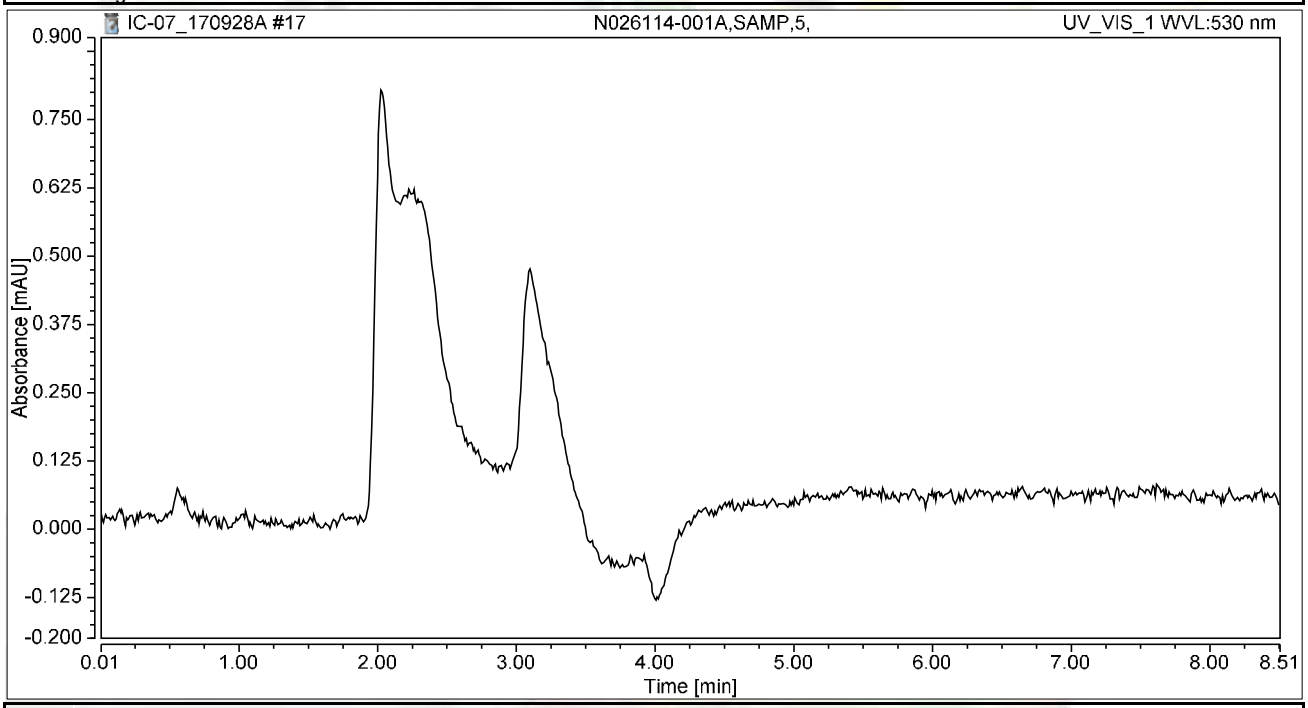
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.285	9.454	100.00	100.00	4.9494
Total:			**1.285**	**9.454**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

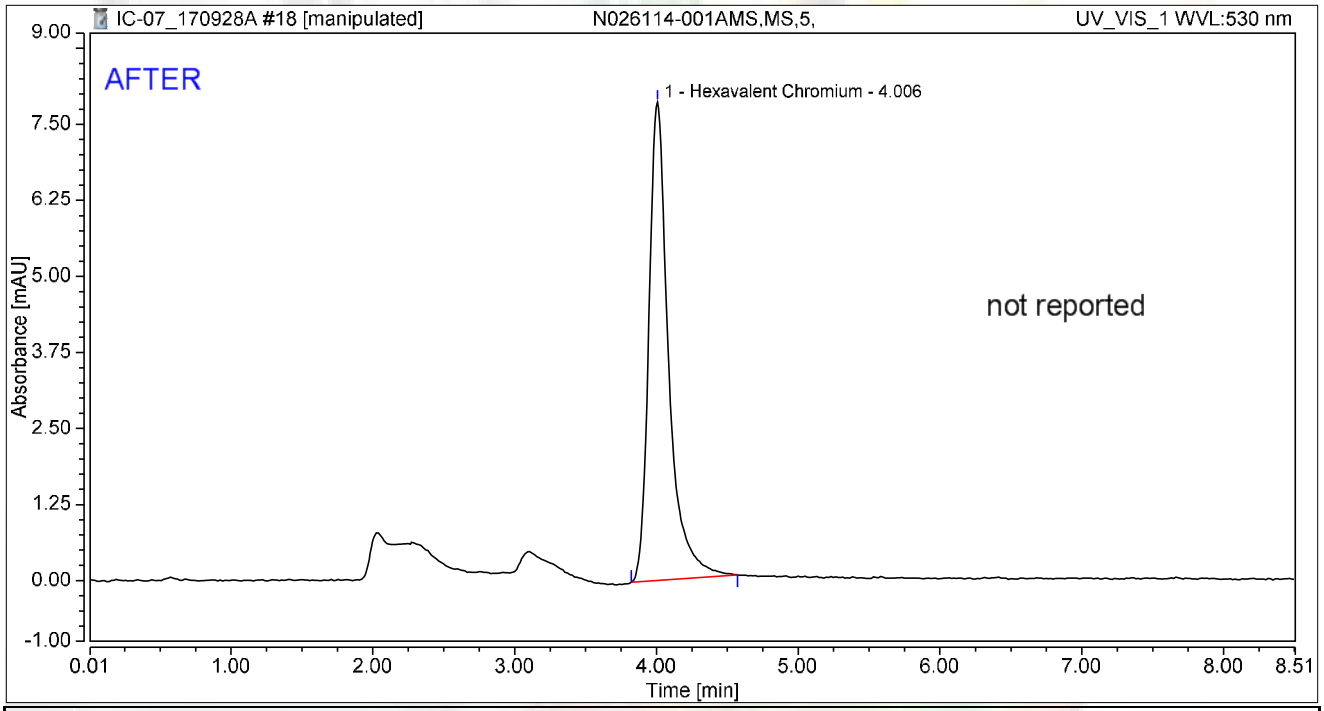
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	1.269	7.861	100.00	100.00	4.8905
Total:			**1.269**	**7.861**	**100.00**	**100.00**	

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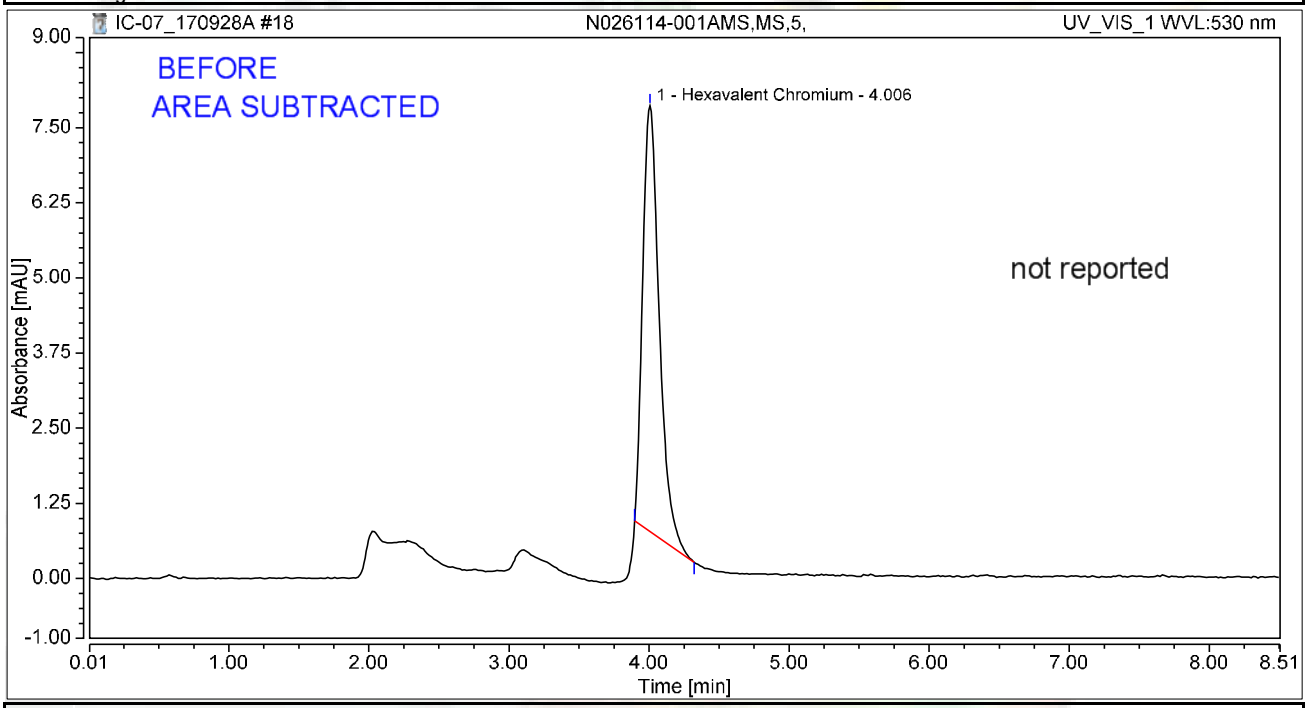
Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.975	7.079	100.00	100.00	3.7584
Total:			**0.975**	**7.079**	**100.00**	**100.00**	

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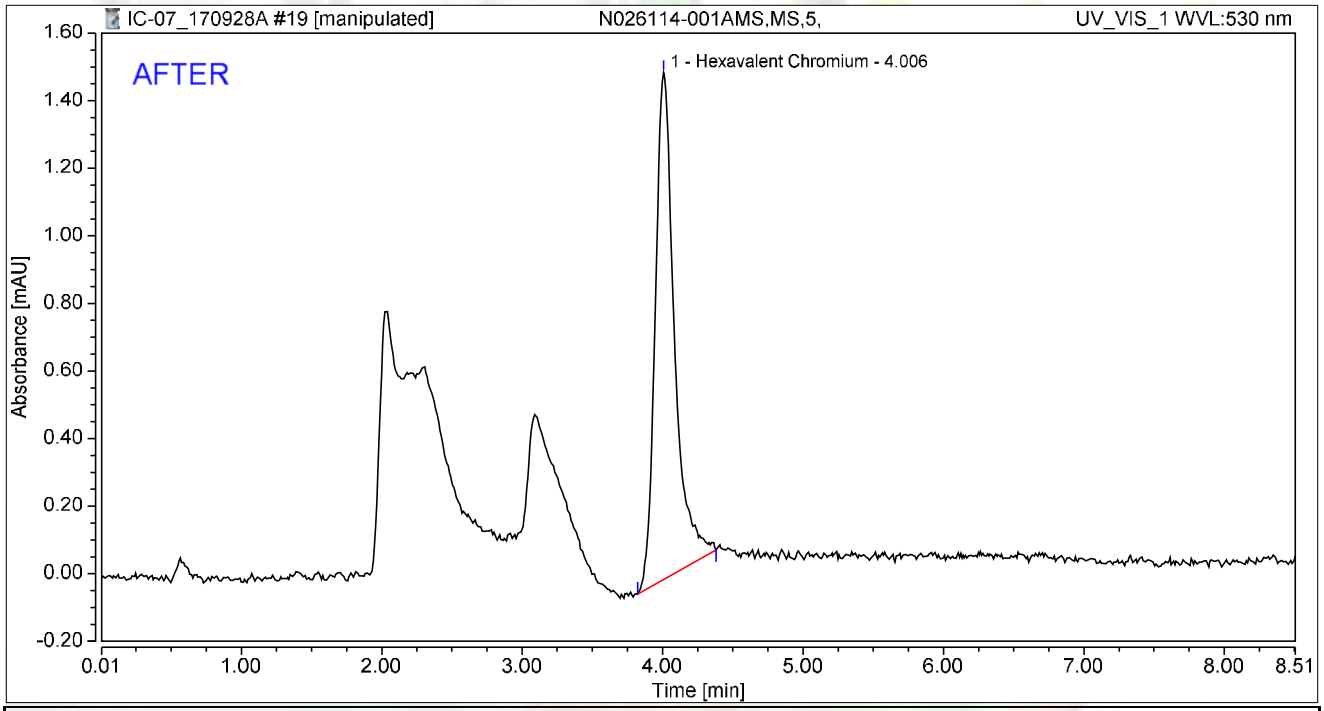
Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.238	1.500	100.00	100.00	0.9168
Total:			**0.238**	**1.500**	**100.00**	**100.00**	

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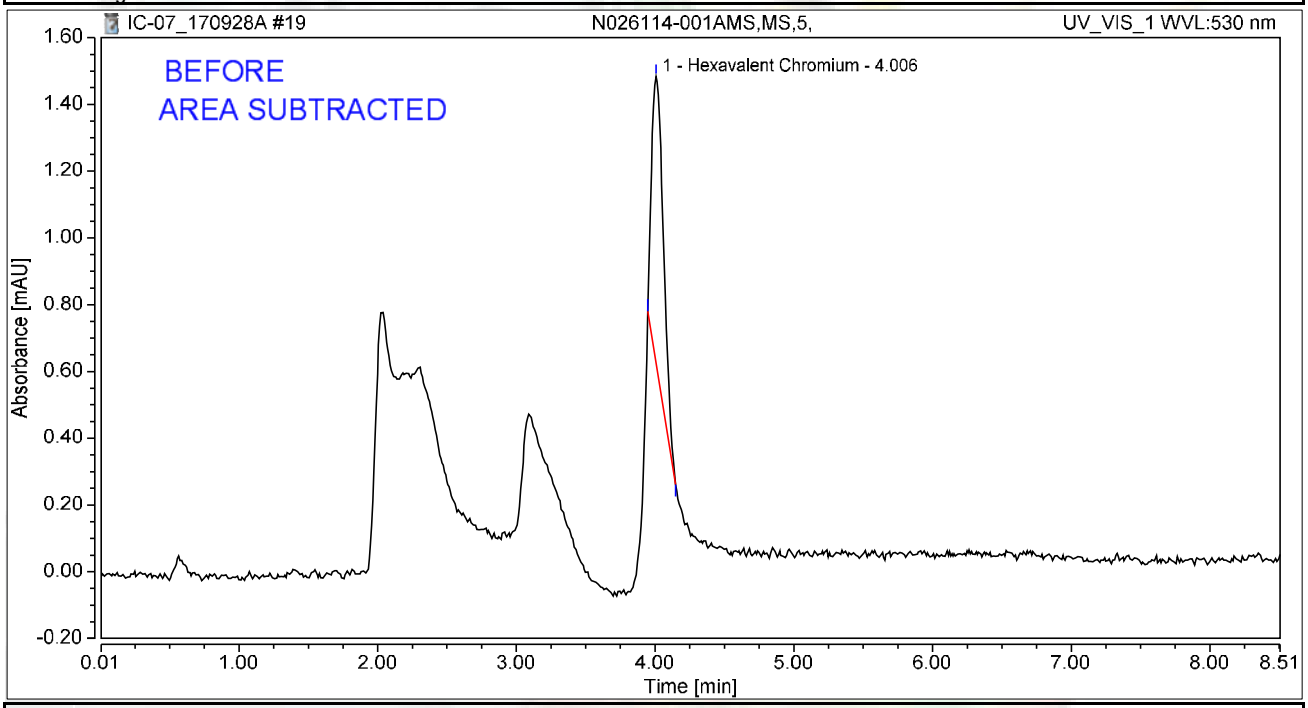
Reviewed by: 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.085	0.854	100.00	100.00	0.3284
Total:			**0.085**	**0.854**	**100.00**	**100.00**	

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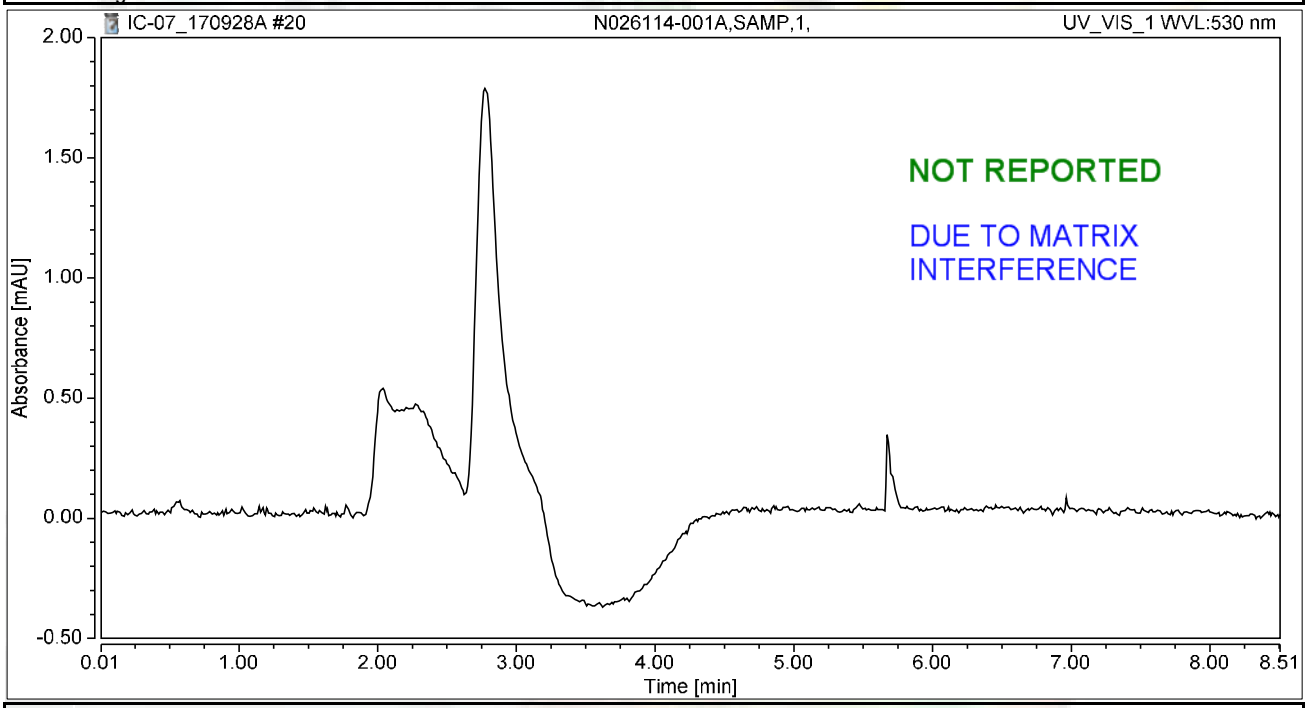
Chromatogram and Results

Injection Details

Injection Name:	**N026114-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

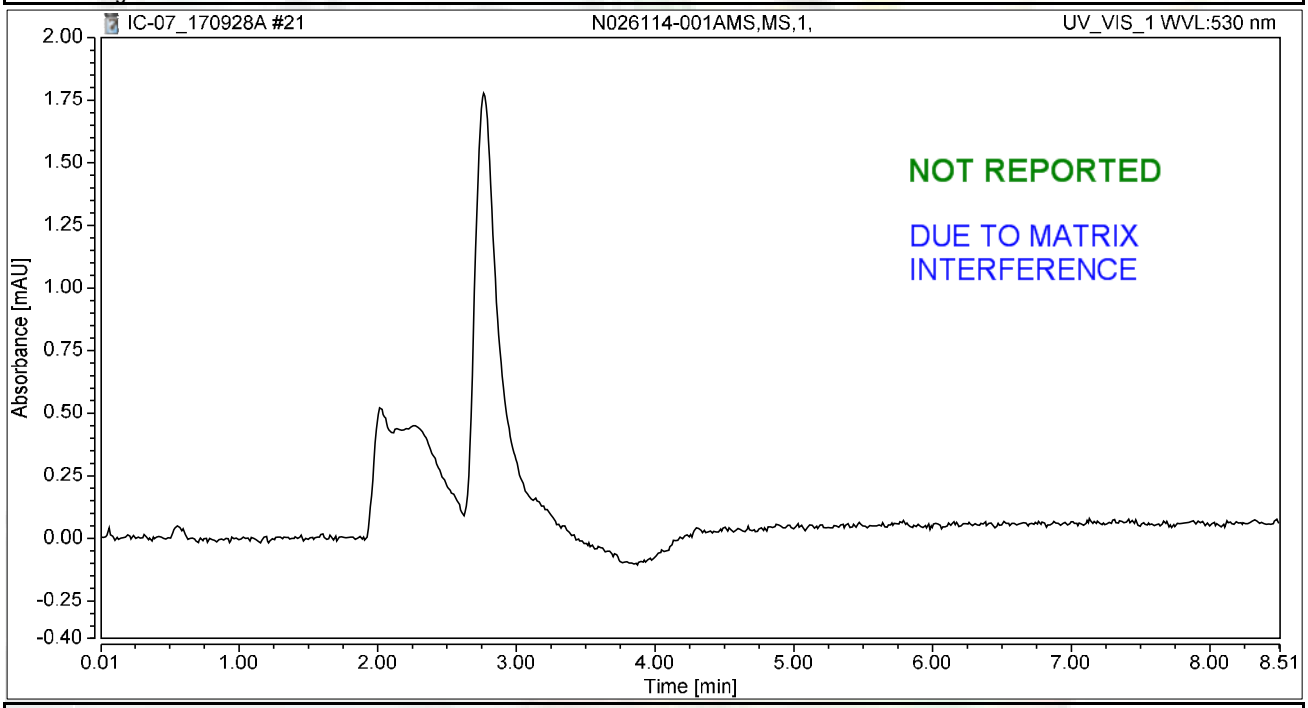
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

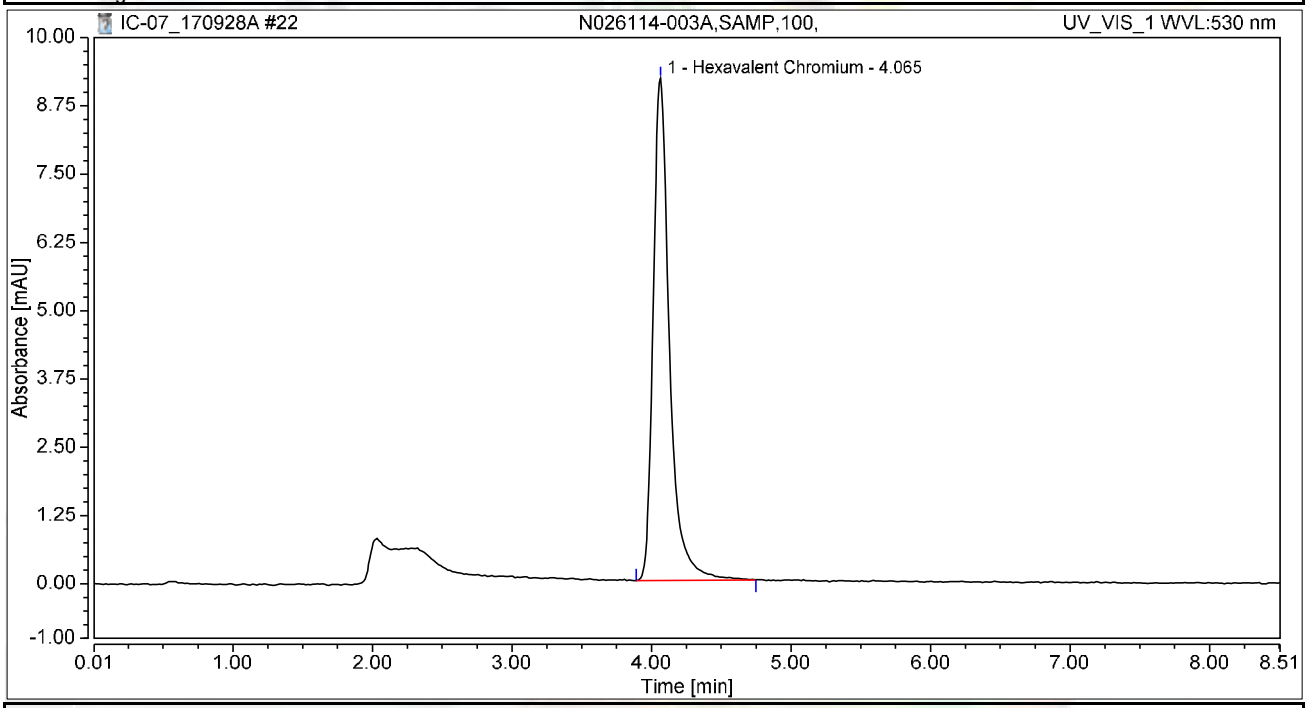
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

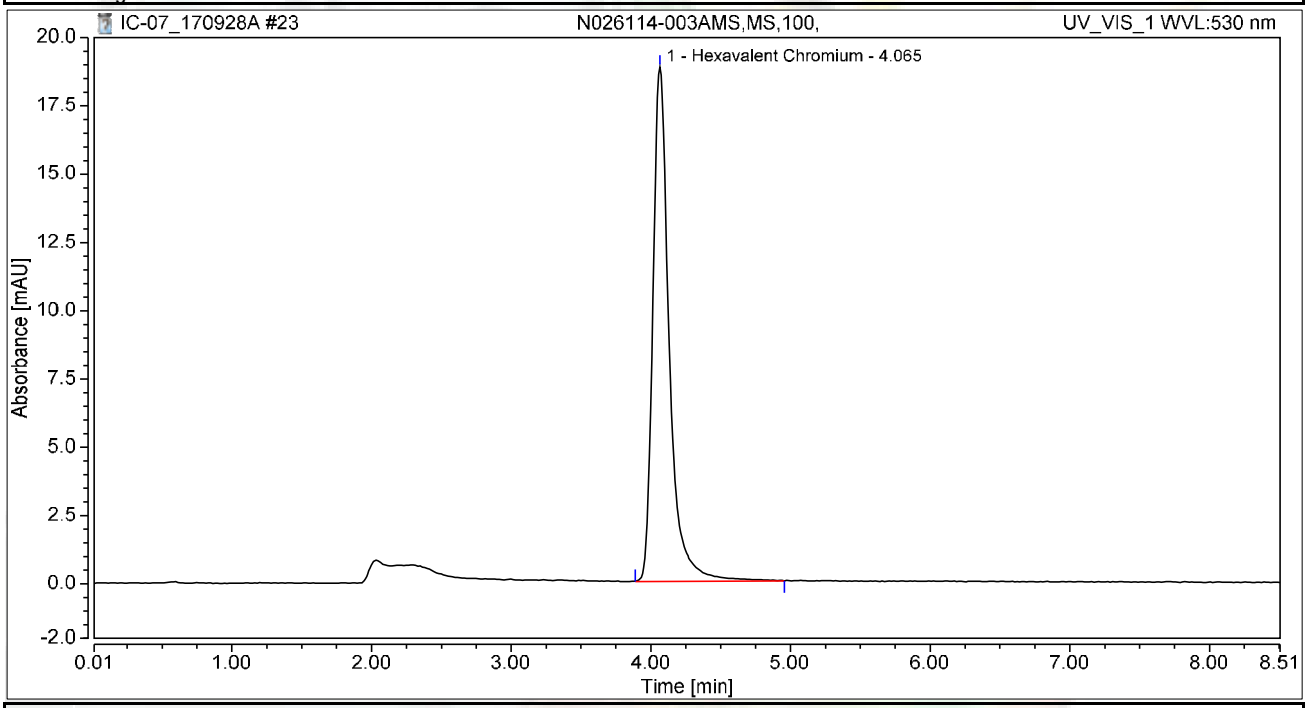
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.247	9.189	100.00	100.00	4.8043
Total:			**1.247**	**9.189**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003AMS,MS,100,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

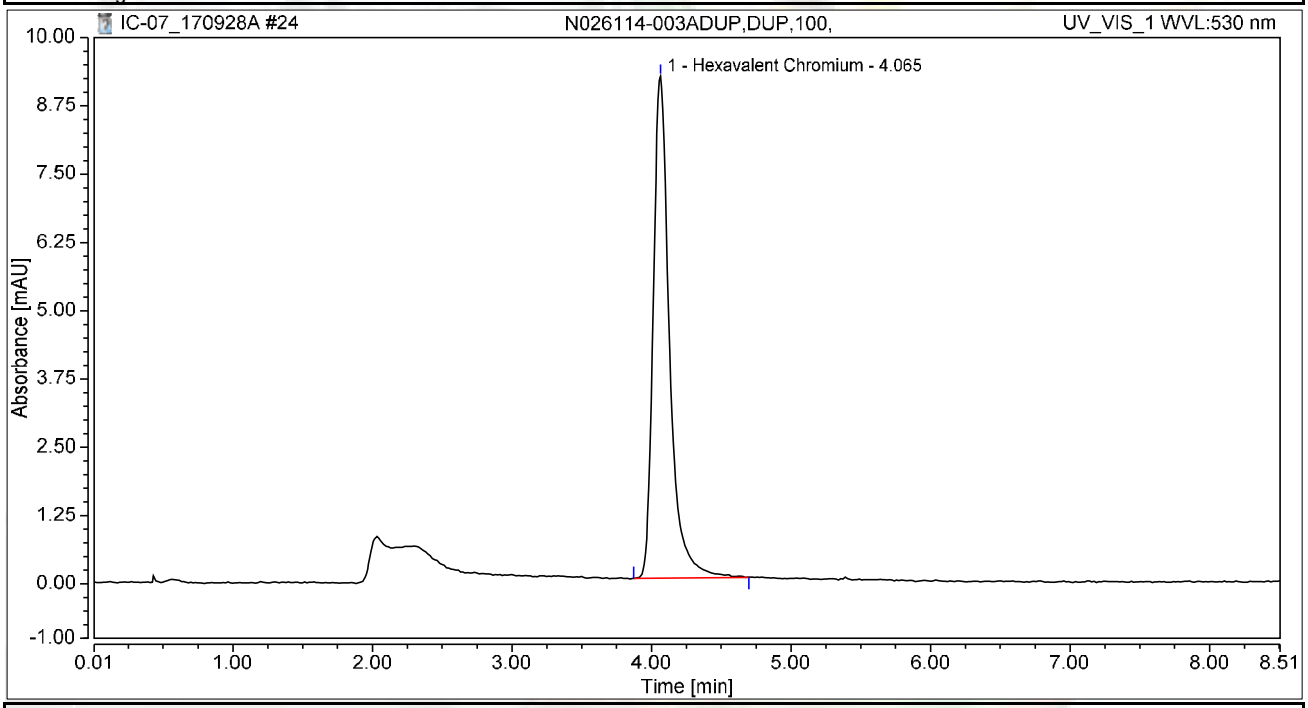
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.567	18.827	100.00	100.00	9.8902
Total:			**2.567**	**18.827**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003ADUP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

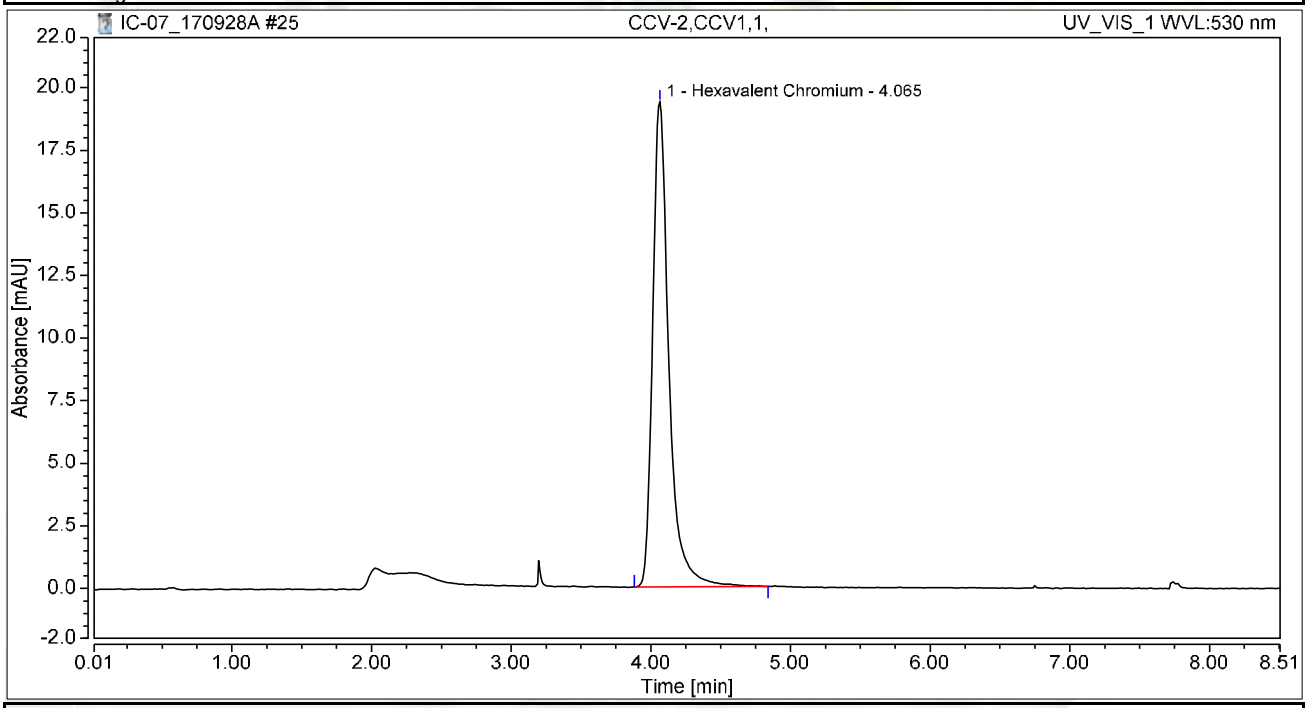
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.244	9.185	100.00	100.00	4.7918
Total:			**1.244**	**9.185**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

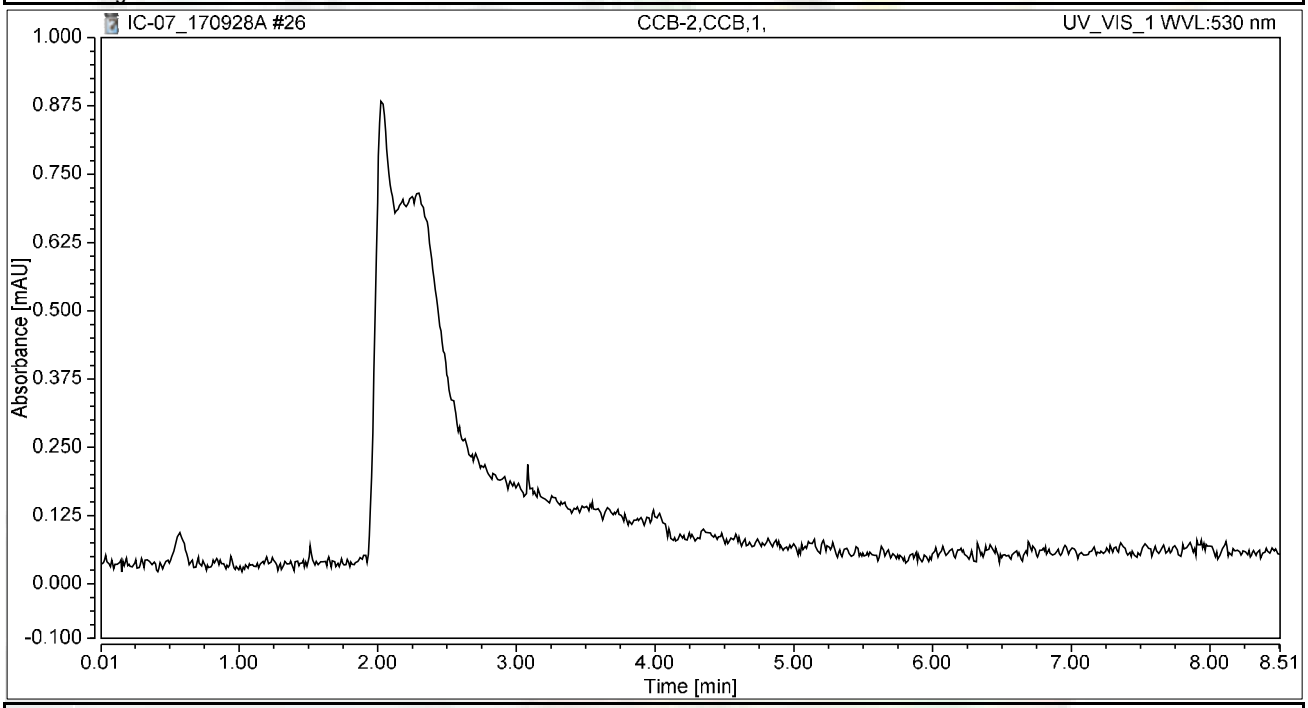
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.603	19.361	100.00	100.00	10.0285
Total:			**2.603**	**19.361**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

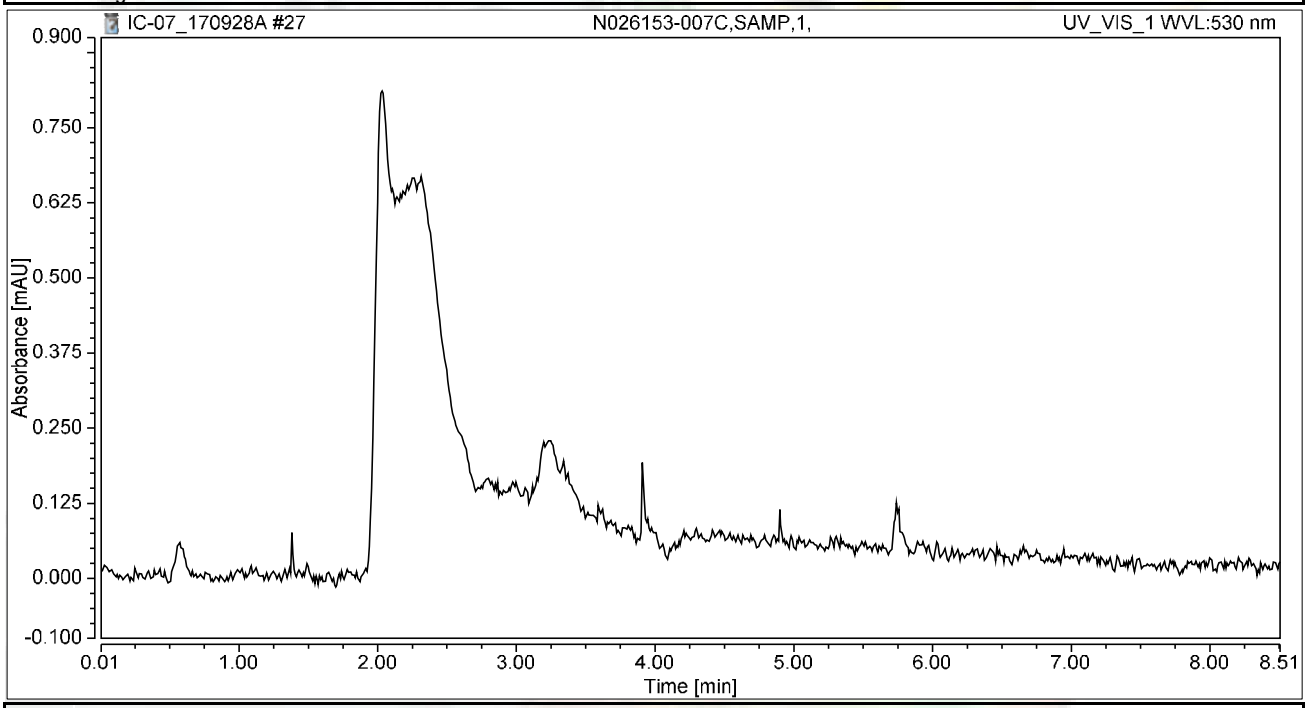
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-007C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

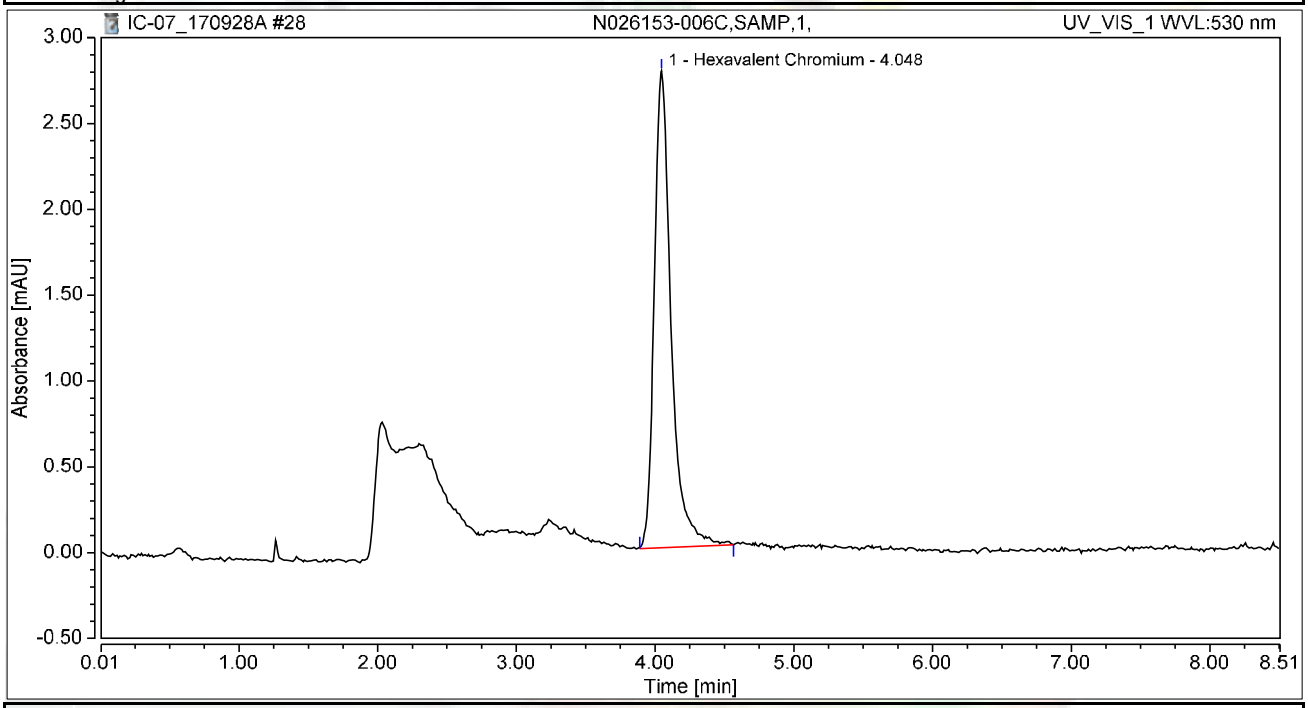
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-006C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

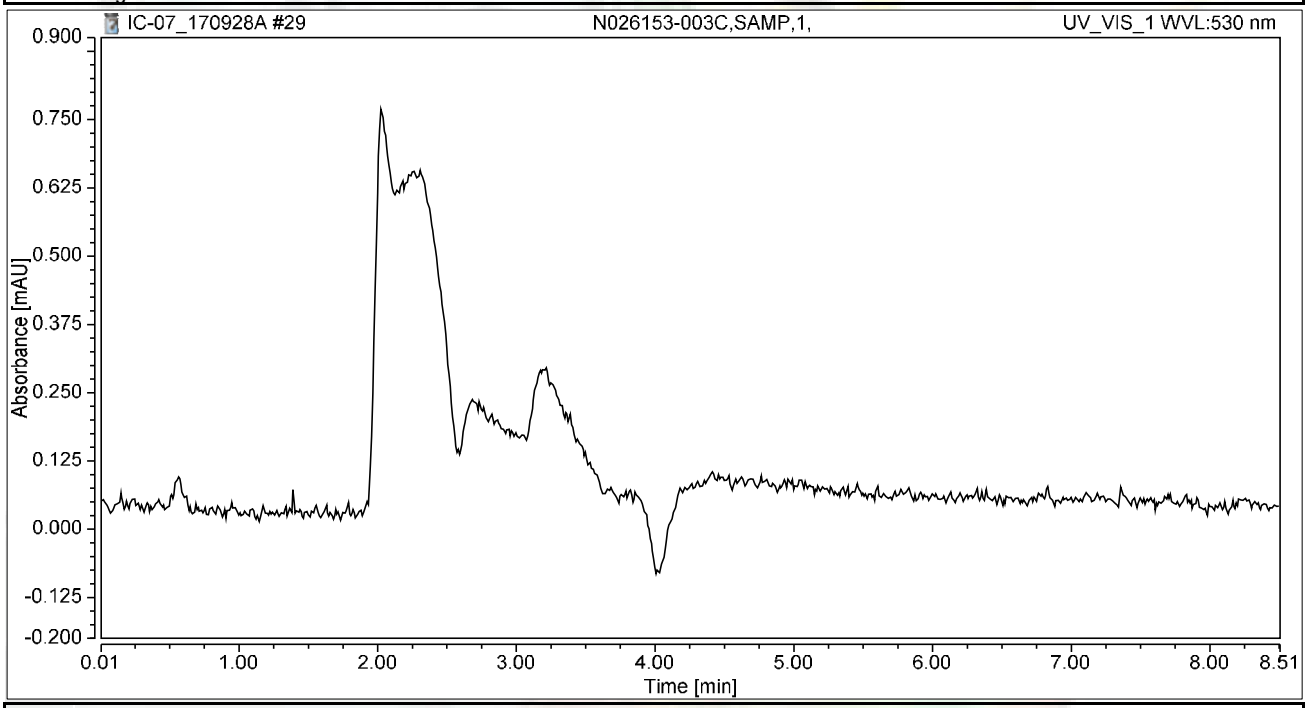
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.390	2.777	100.00	100.00	1.5041
Total:			**0.390**	**2.777**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-003C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

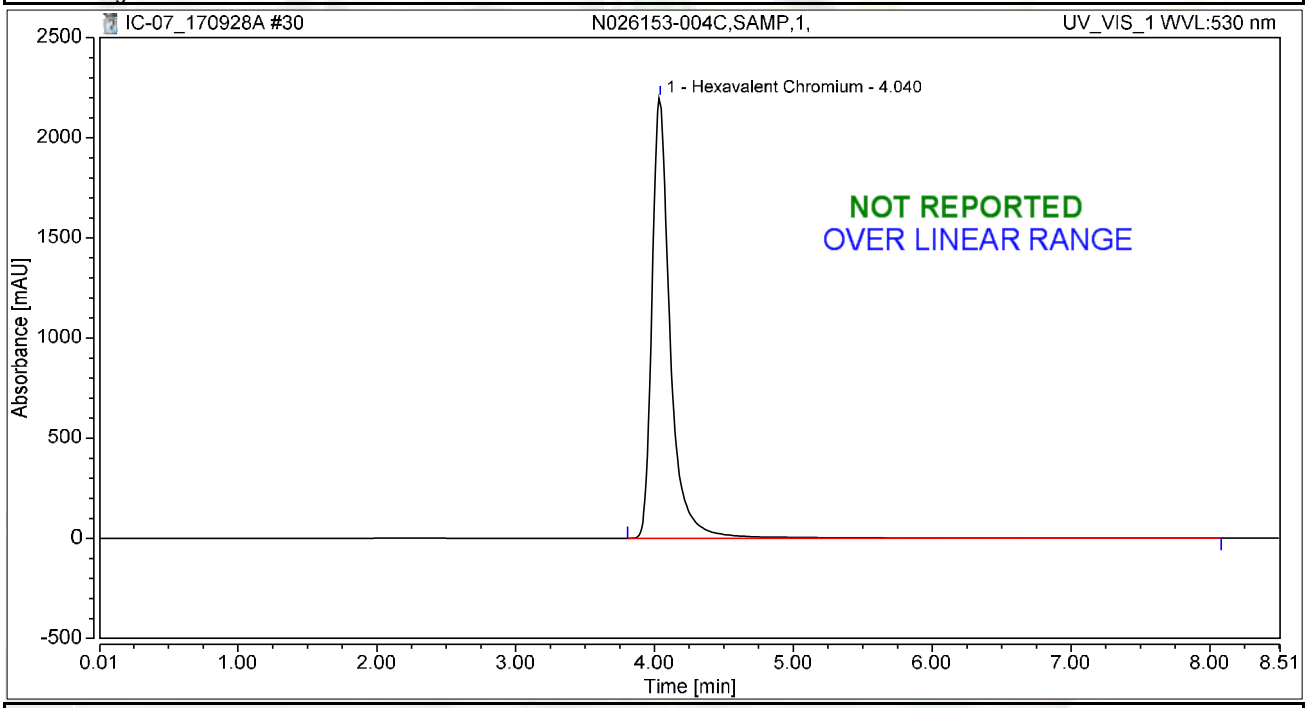
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

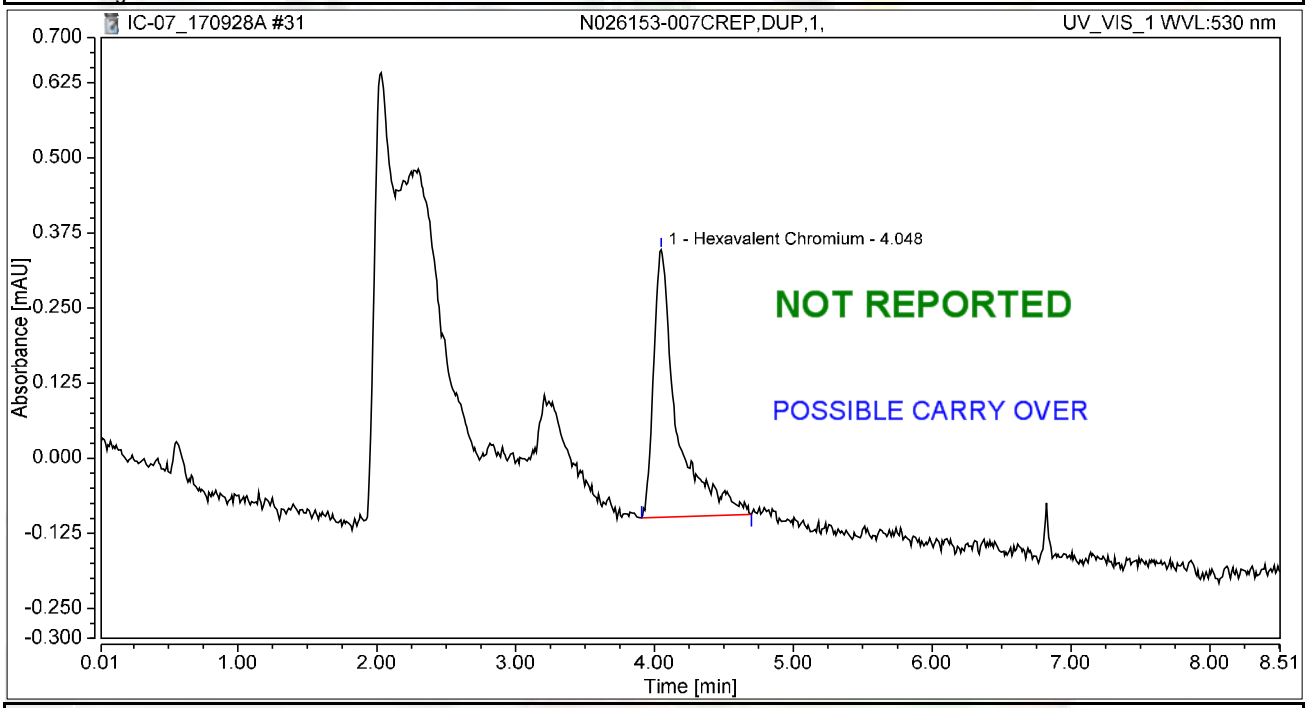
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	337.657	2199.290	100.00	100.00	1300.9548
Total:			**337.657**	**2199.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-007CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.088	0.445	100.00	100.00	0.3374
Total:			**0.088**	**0.445**	**100.00**	**100.00**	

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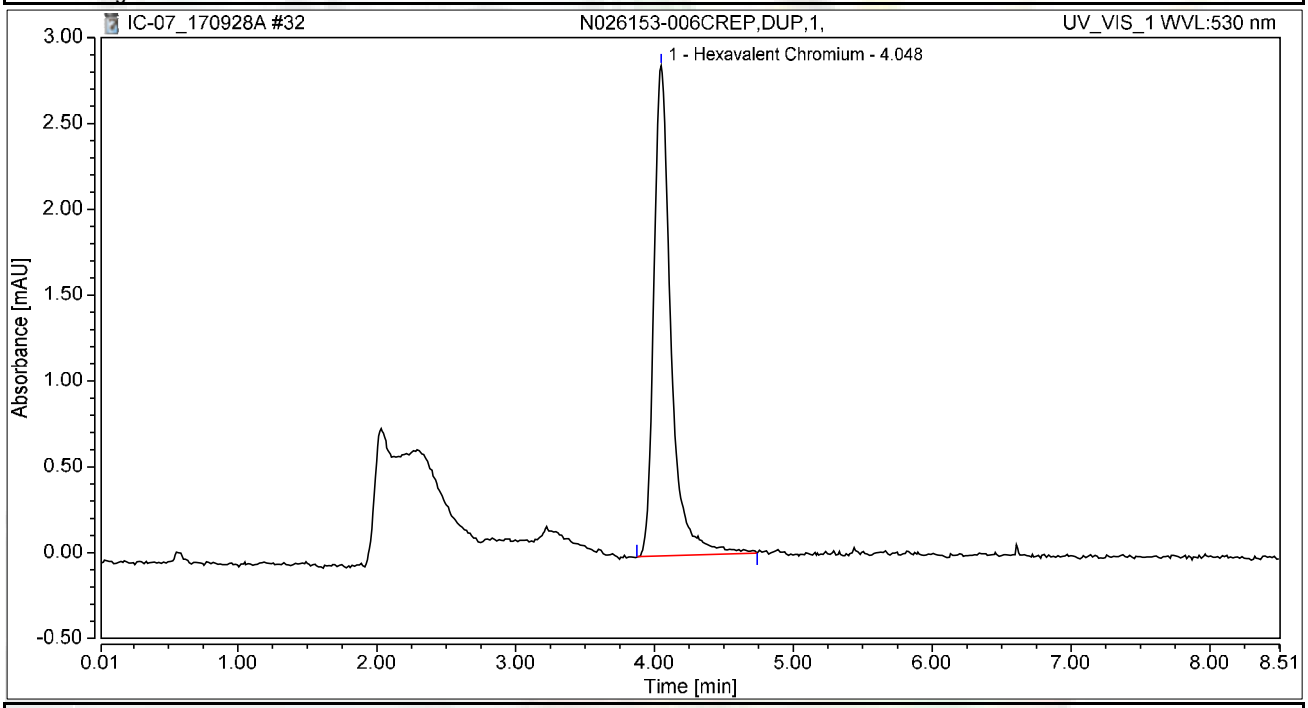
Chromatogram and Results

Injection Details

Injection Name:	**N026153-006CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

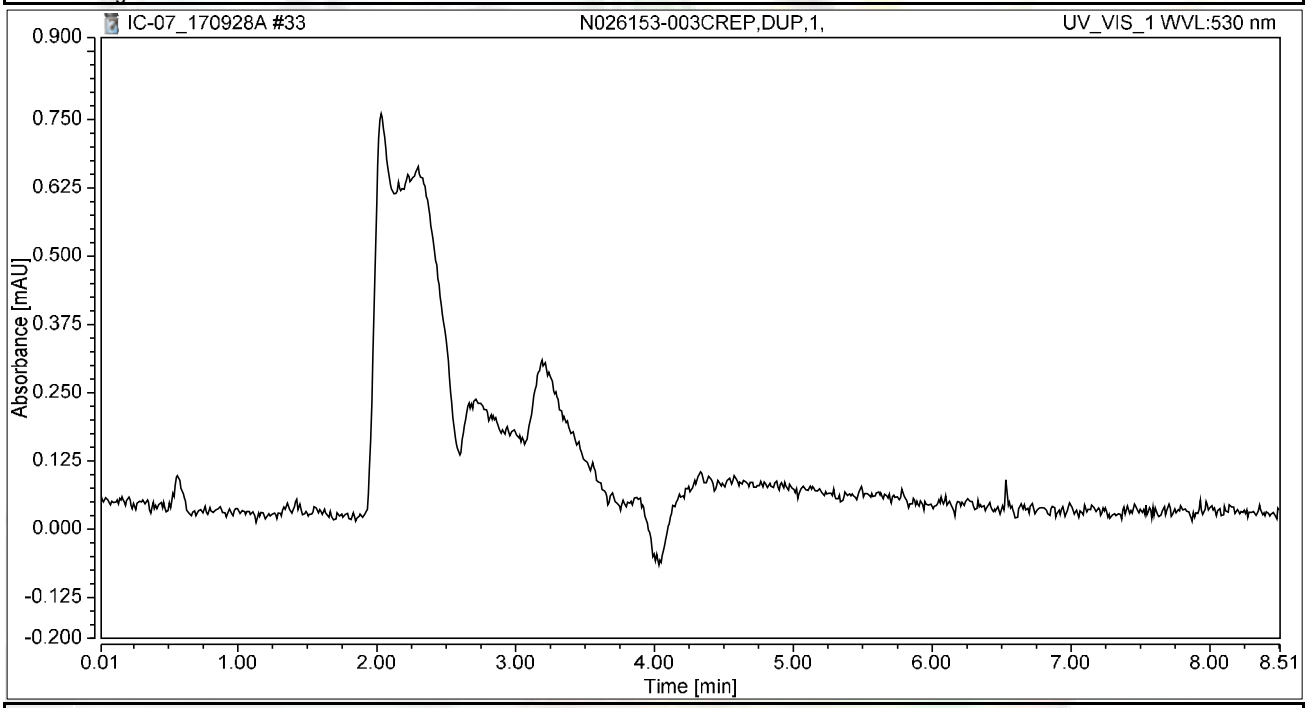
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.409	2.856	100.00	100.00	1.5761
Total:			**0.409**	**2.856**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-003CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

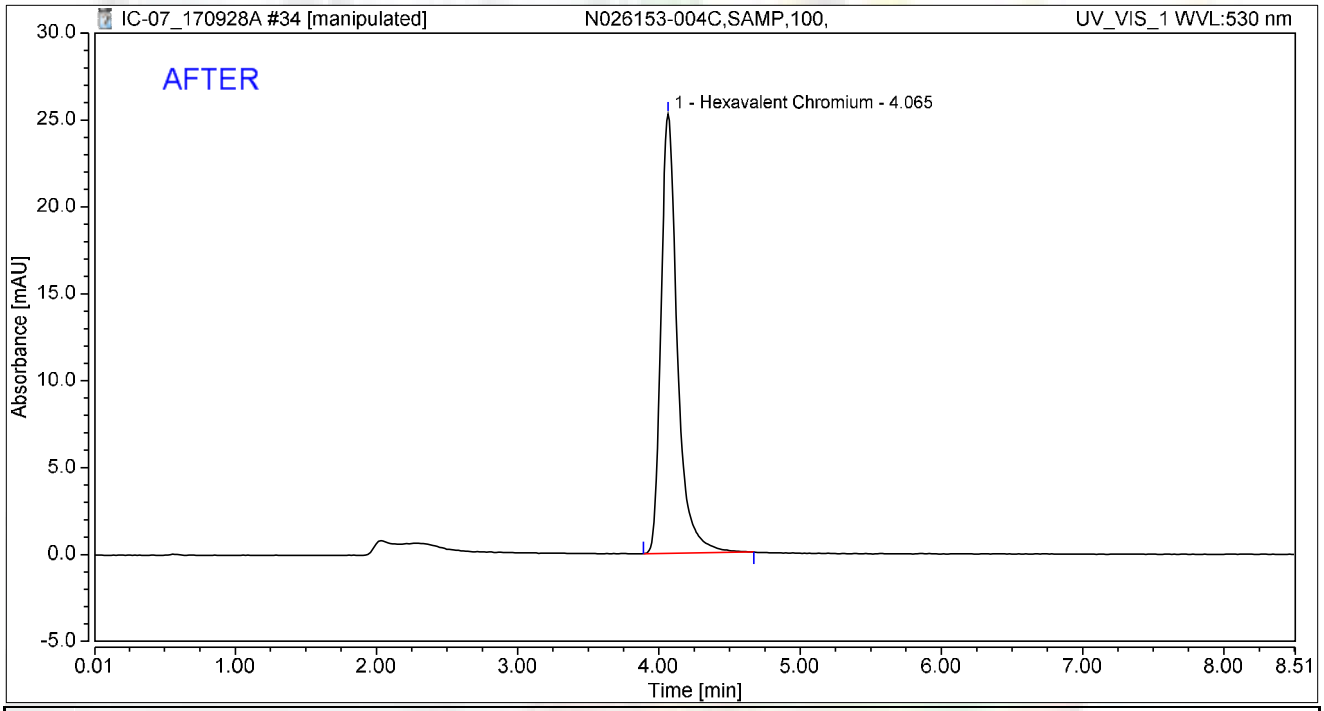
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004C,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.393	25.284	100.00	100.00	13.0717
Total:			**3.393**	**25.284**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: 10/10/2017

My first report/integration

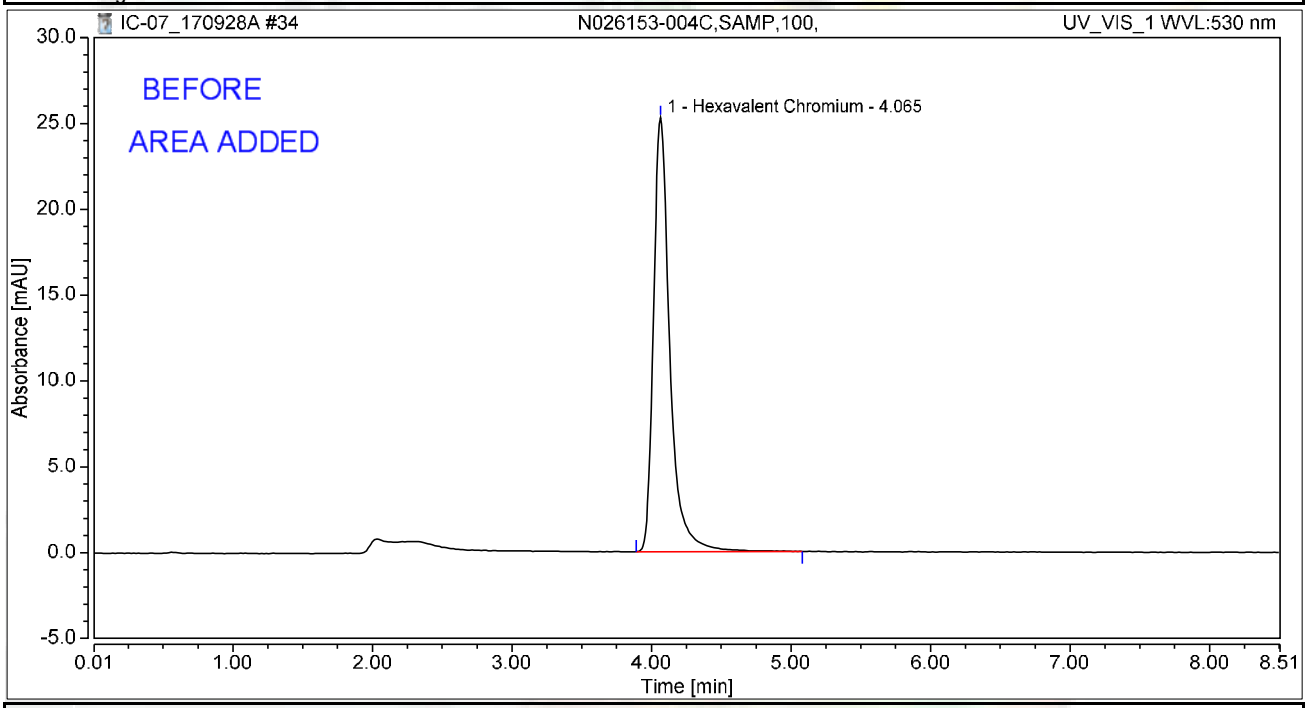
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004C,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.443	25.303	100.00	100.00	13.2660
Total:			**3.443**	**25.303**	**100.00**	**100.00**	

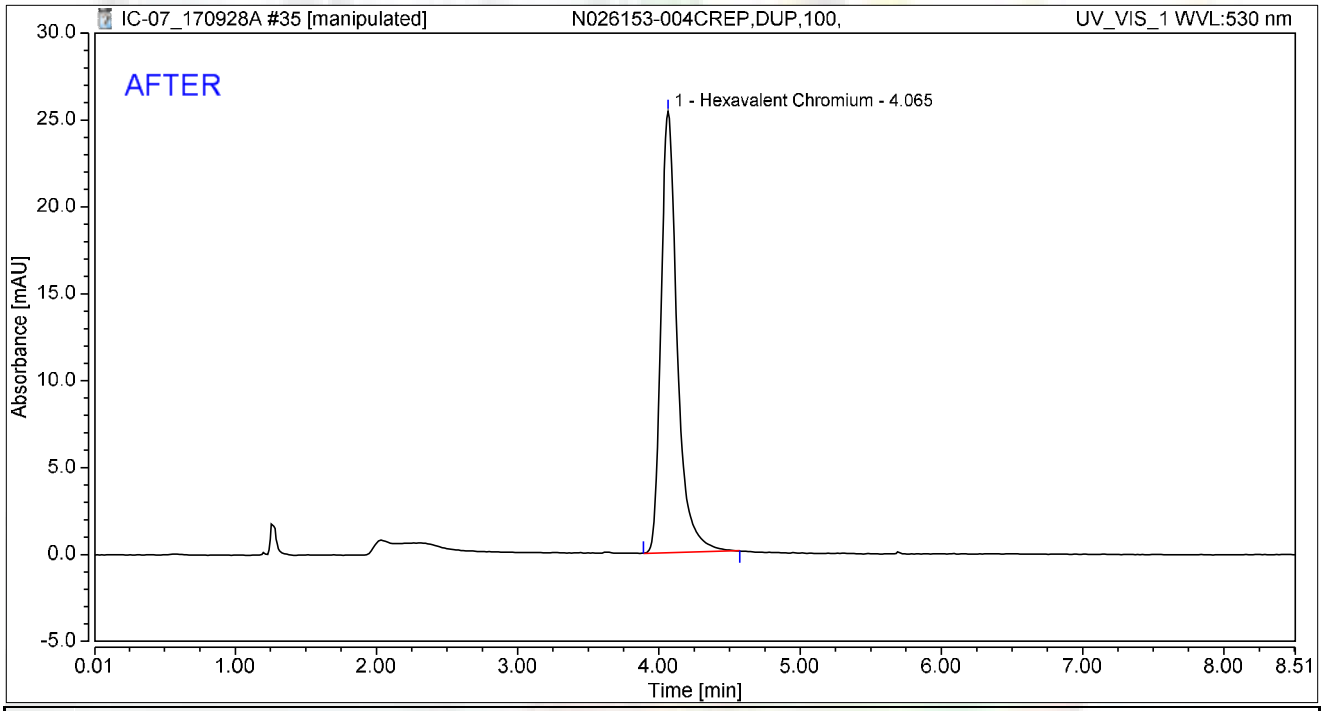
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004CREP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.385	25.375	100.00	100.00	13.0409
Total:			**3.385**	**25.375**	**100.00**	**100.00**	

rba 10/5/2017

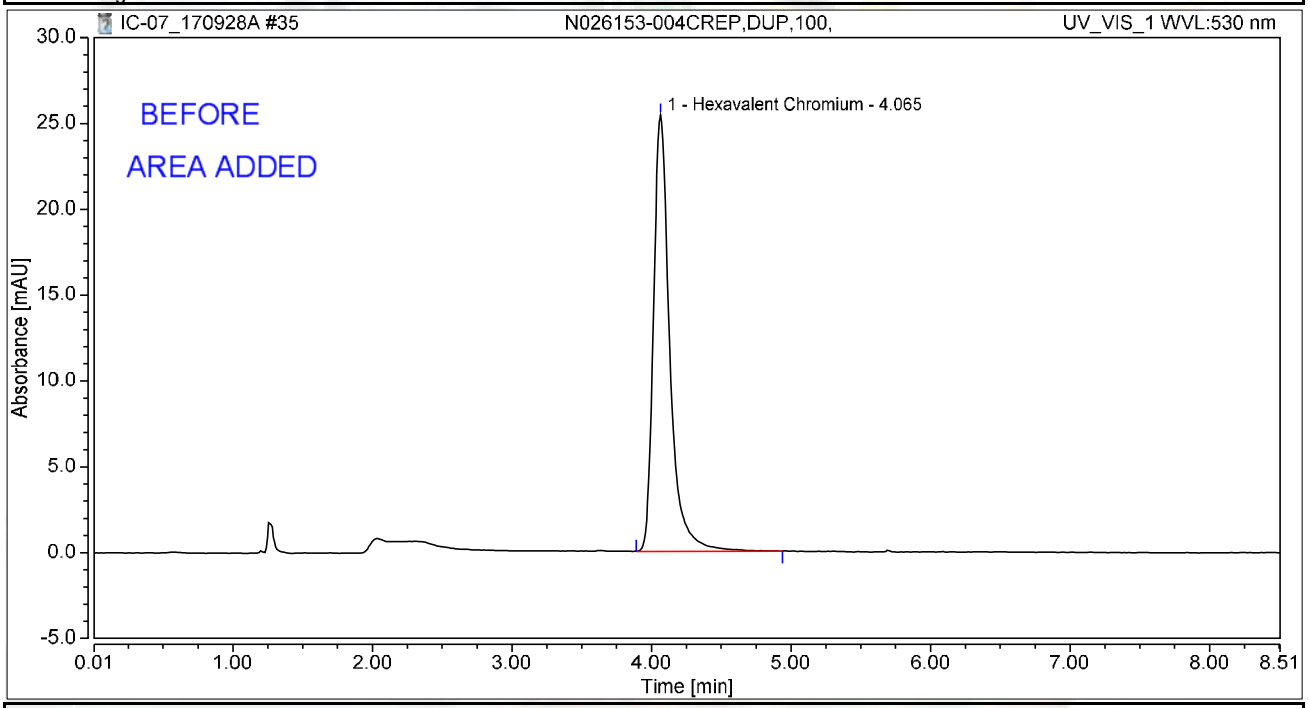
Reviewed by: Nancy 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004CREP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.449	25.409	100.00	100.00	13.2904
Total:			**3.449**	**25.409**	**100.00**	**100.00**	

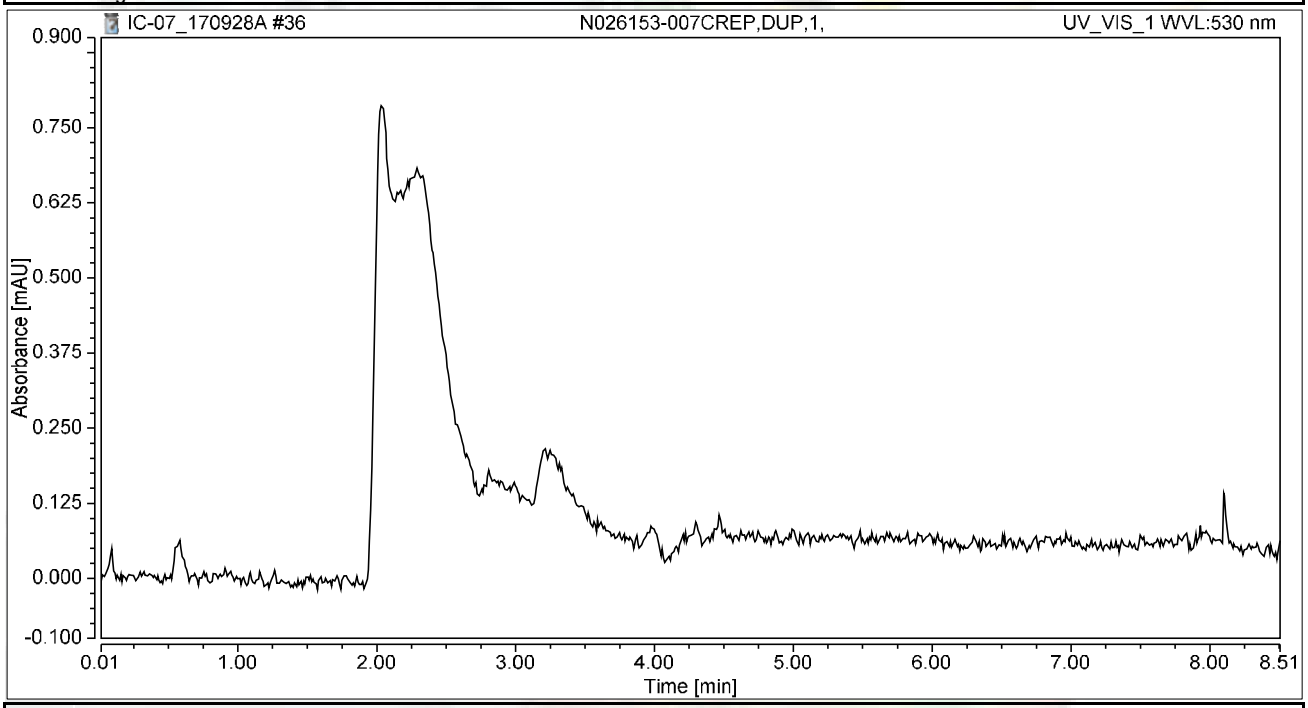
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026153-007CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

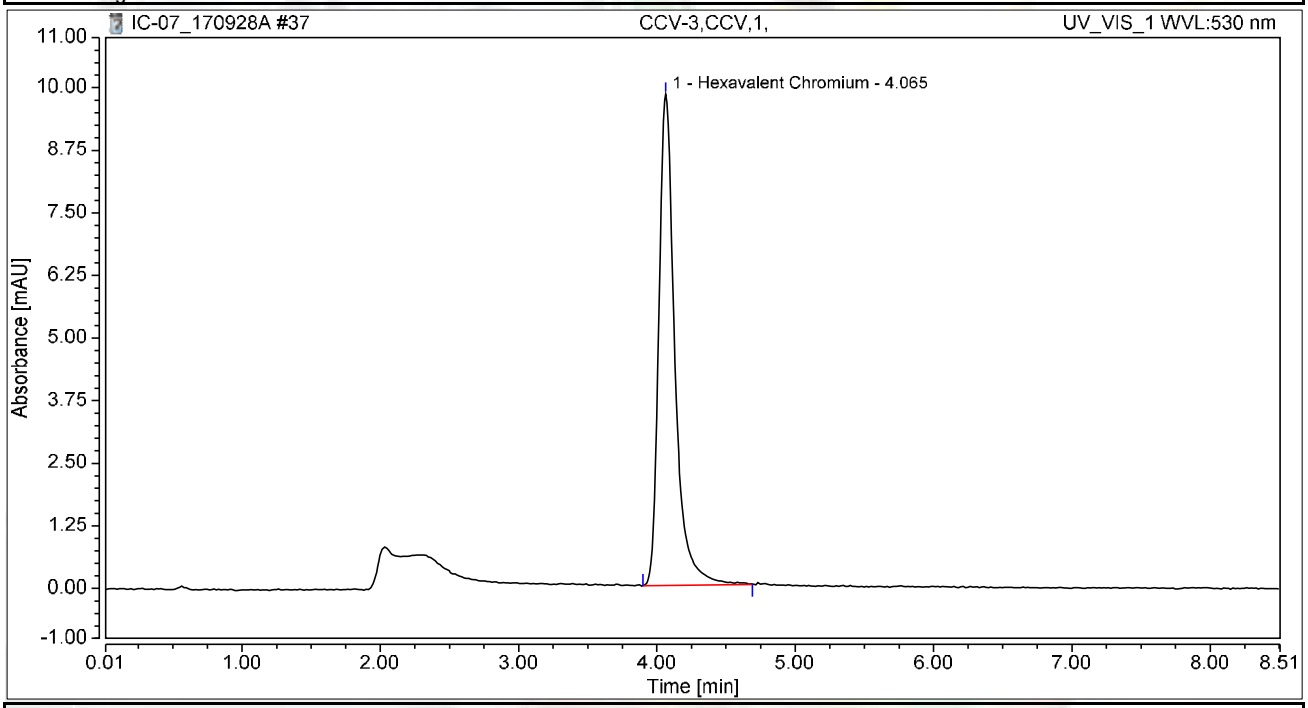
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

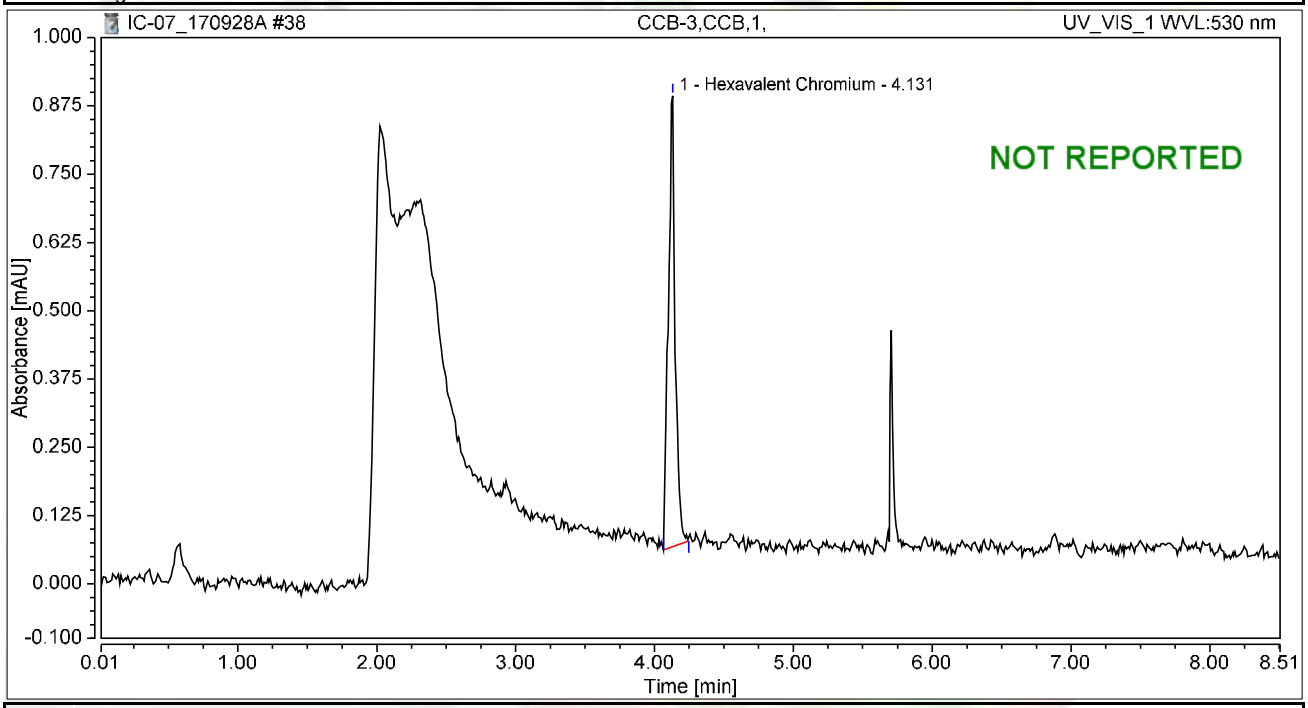
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.322	9.815	100.00	100.00	5.0937
Total:			**1.322**	**9.815**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

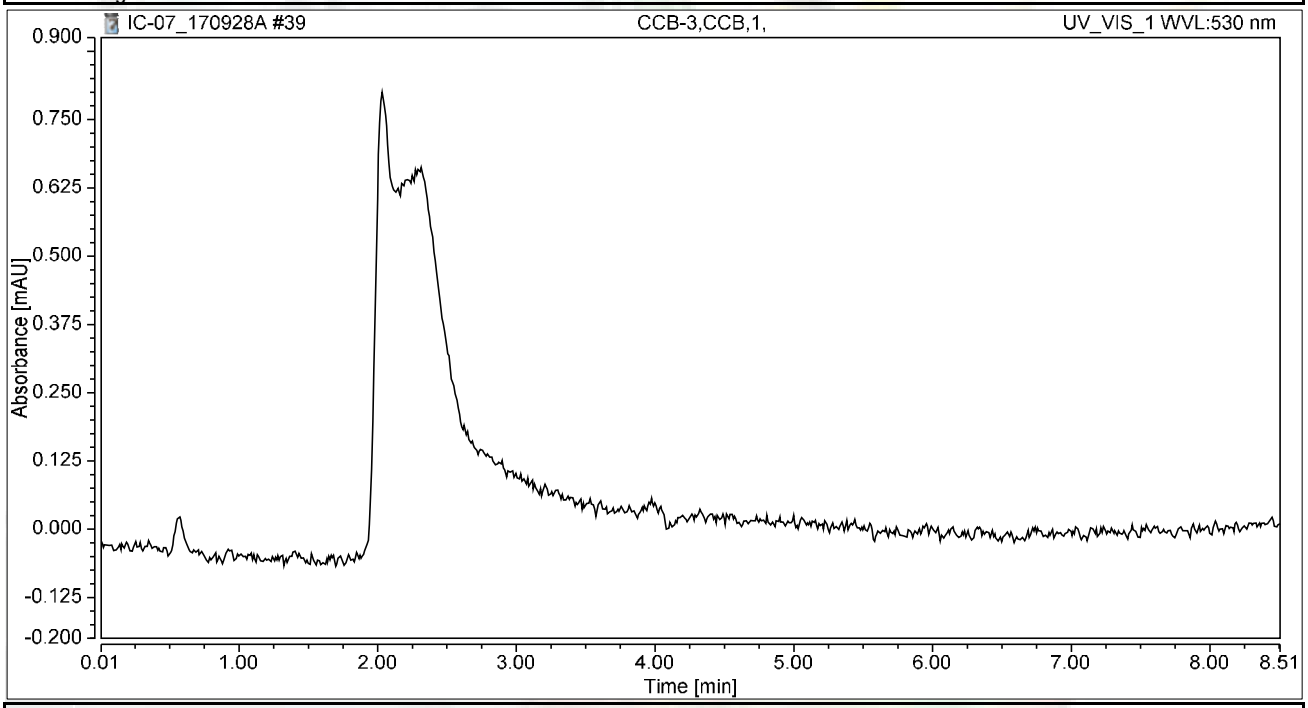
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.131	0.046	0.826	100.00	100.00	0.1774
Total:			**0.046**	**0.826**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

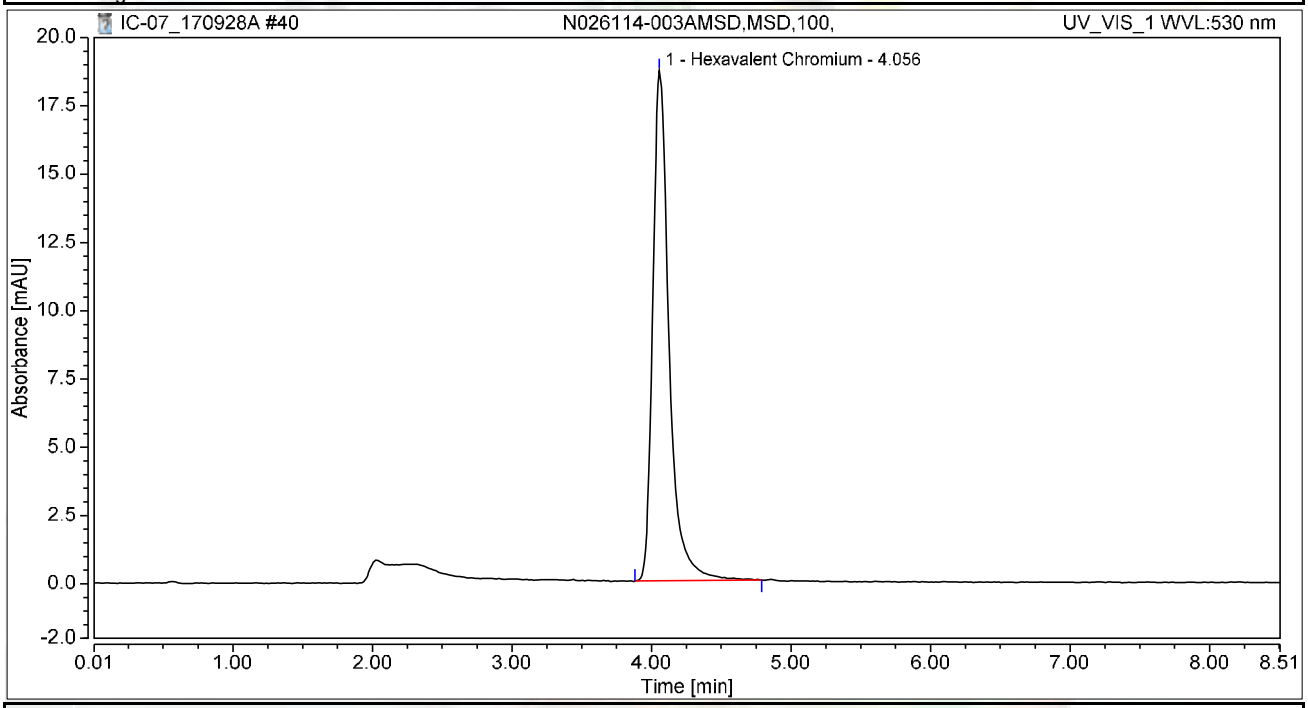
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003AMSD,MSD,100,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

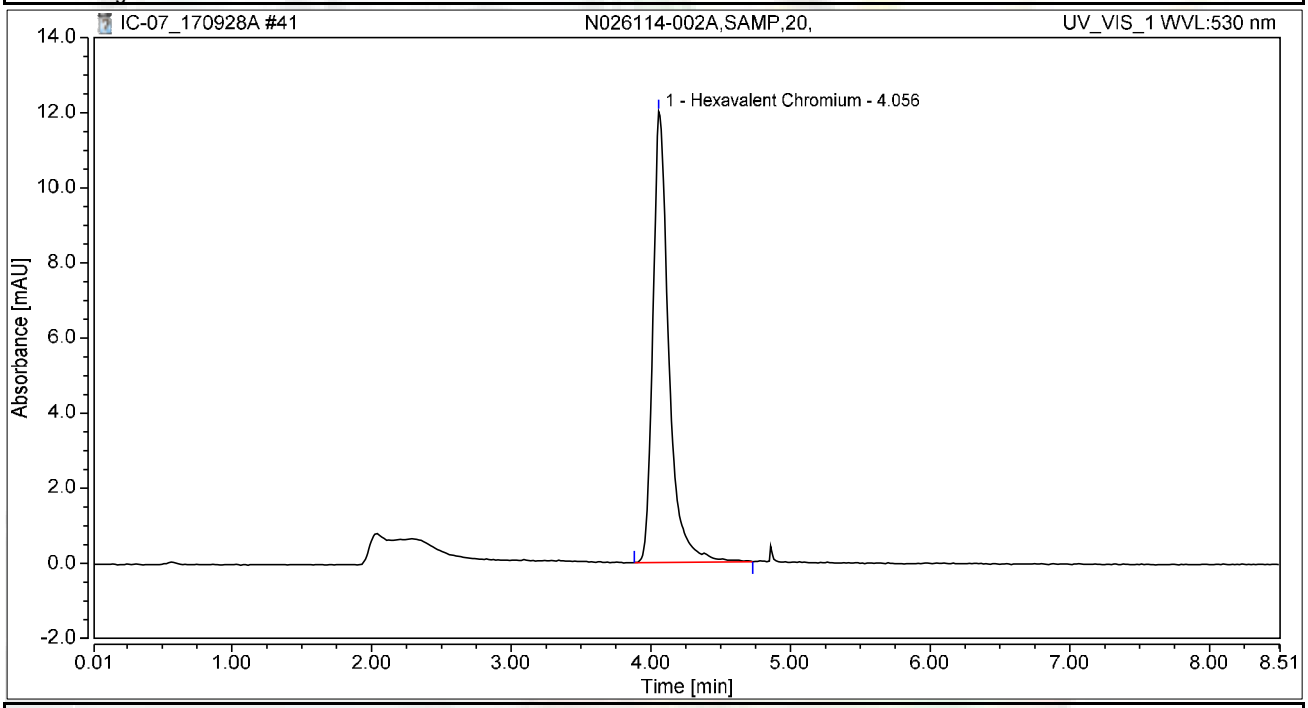
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.540	18.684	100.00	100.00	9.7846
Total:			**2.540**	**18.684**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-002A,SAMP,20,**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

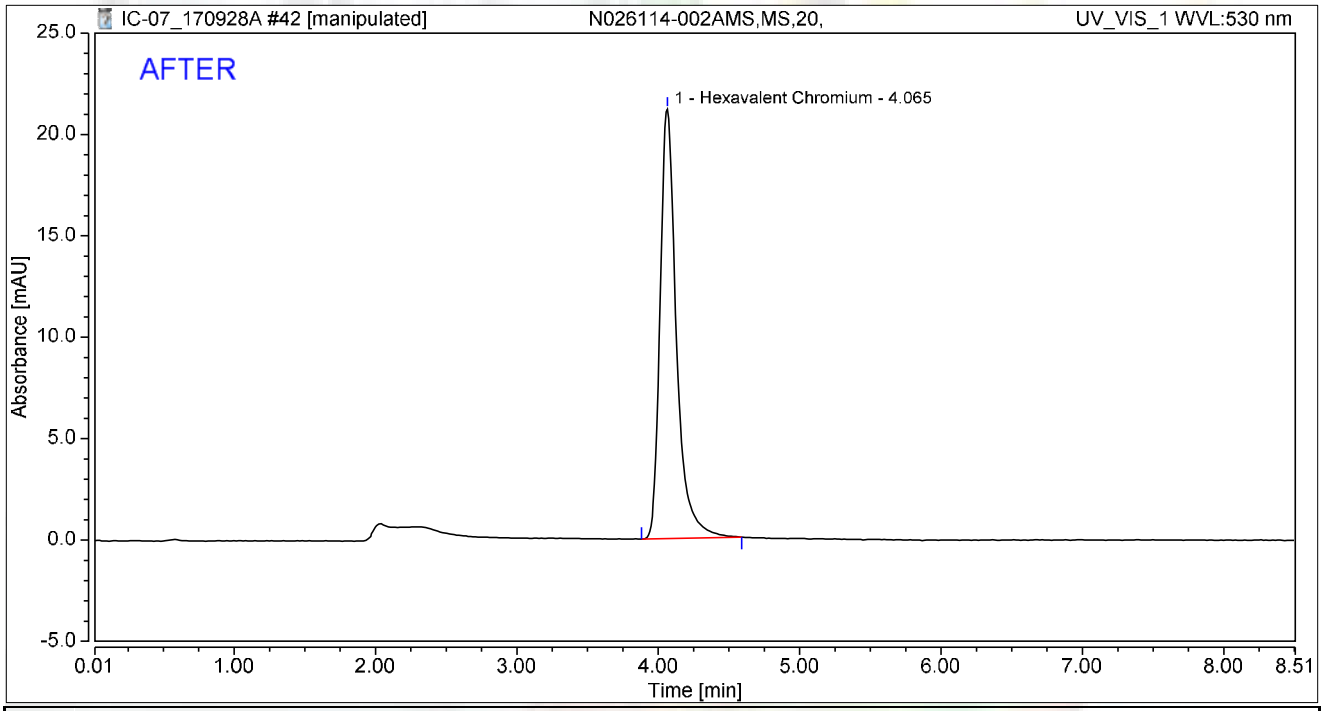
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.592	12.009	100.00	100.00	6.1355
Total:			**1.592**	**12.009**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-002AMS,MS,20,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.851	21.192	100.00	100.00	10.9857
Total:			**2.851**	**21.192**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: 10/10/2017

My first report integration

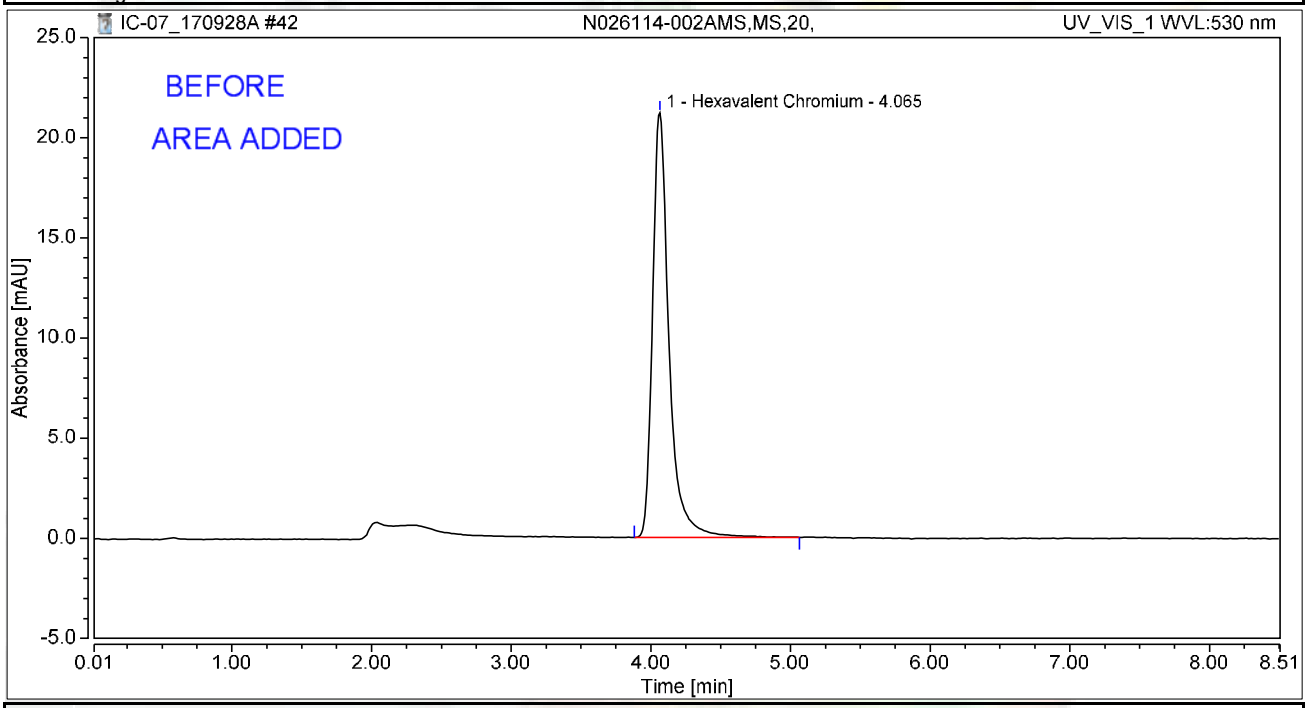
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026114-002AMS,MS,20,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.915	21.220	100.00	100.00	11.2320
Total:			**2.915**	**21.220**	**100.00**	**100.00**	

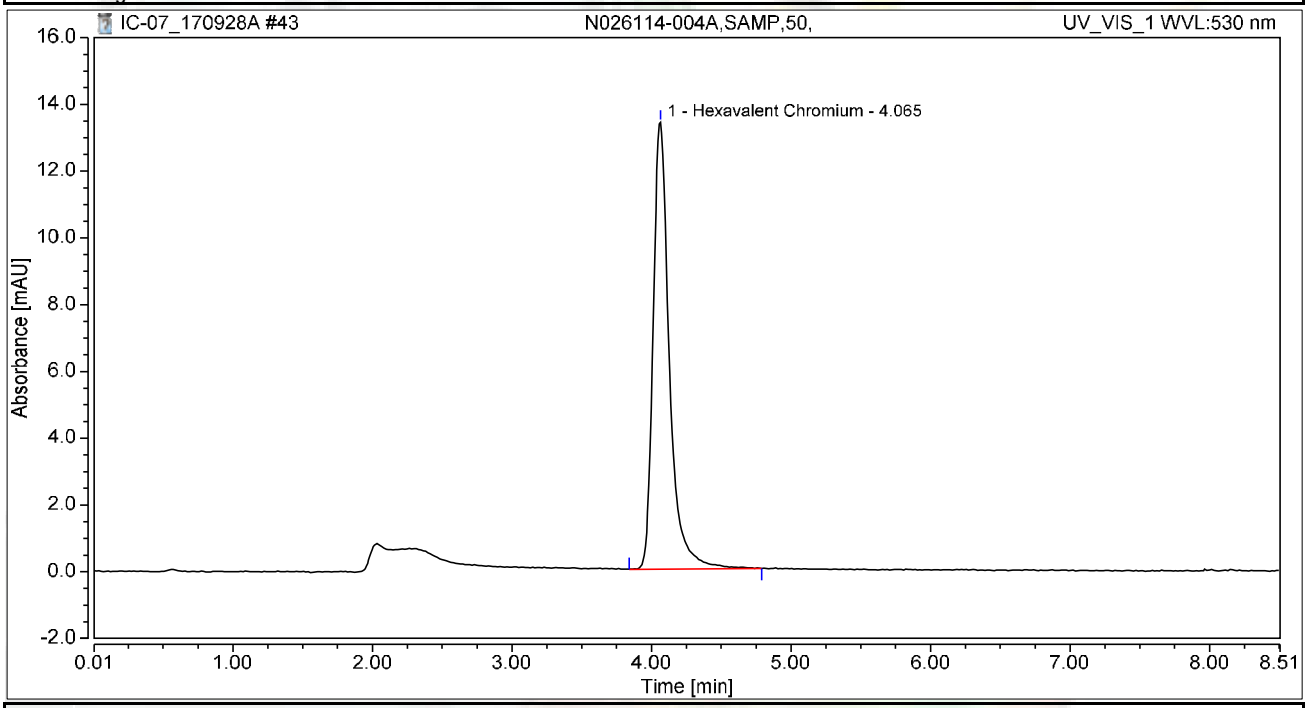
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026114-004A,SAMP,50,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

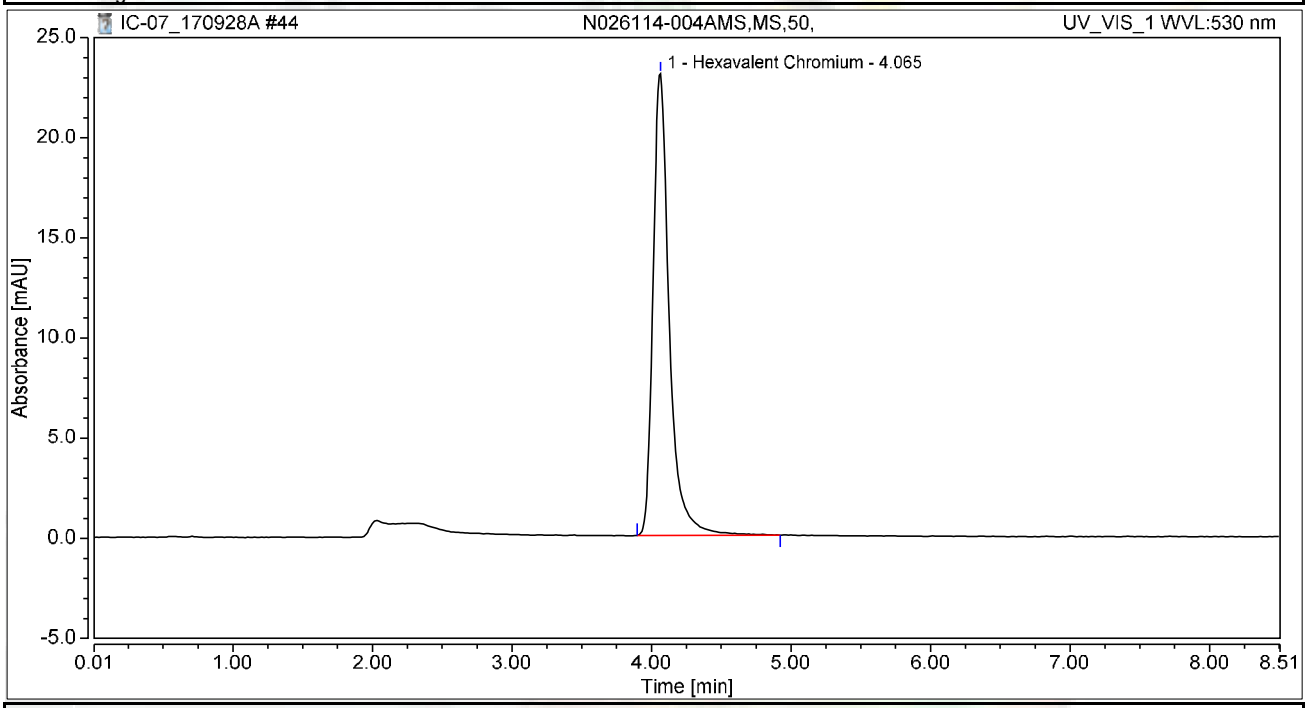
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.809	13.390	100.00	100.00	6.9715
Total:			**1.809**	**13.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-004AMS,MS,50,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

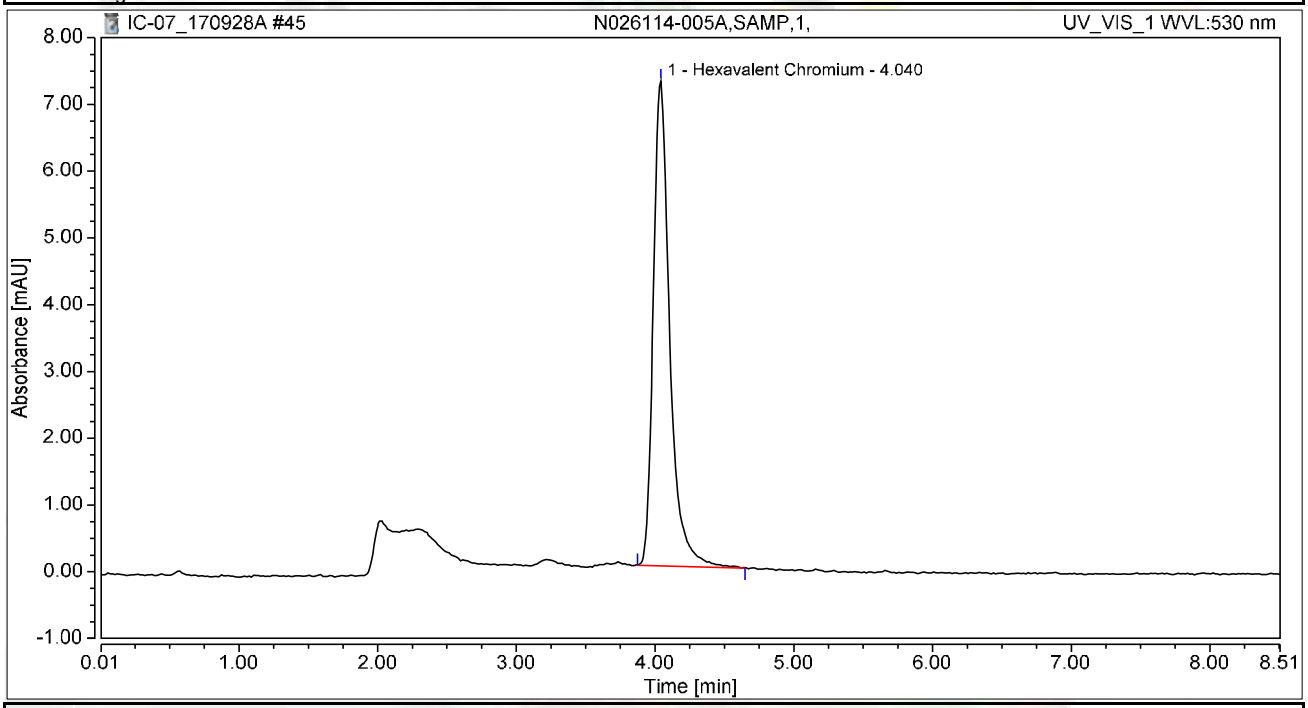
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.110	23.050	100.00	100.00	11.9842
Total:			**3.110**	**23.050**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

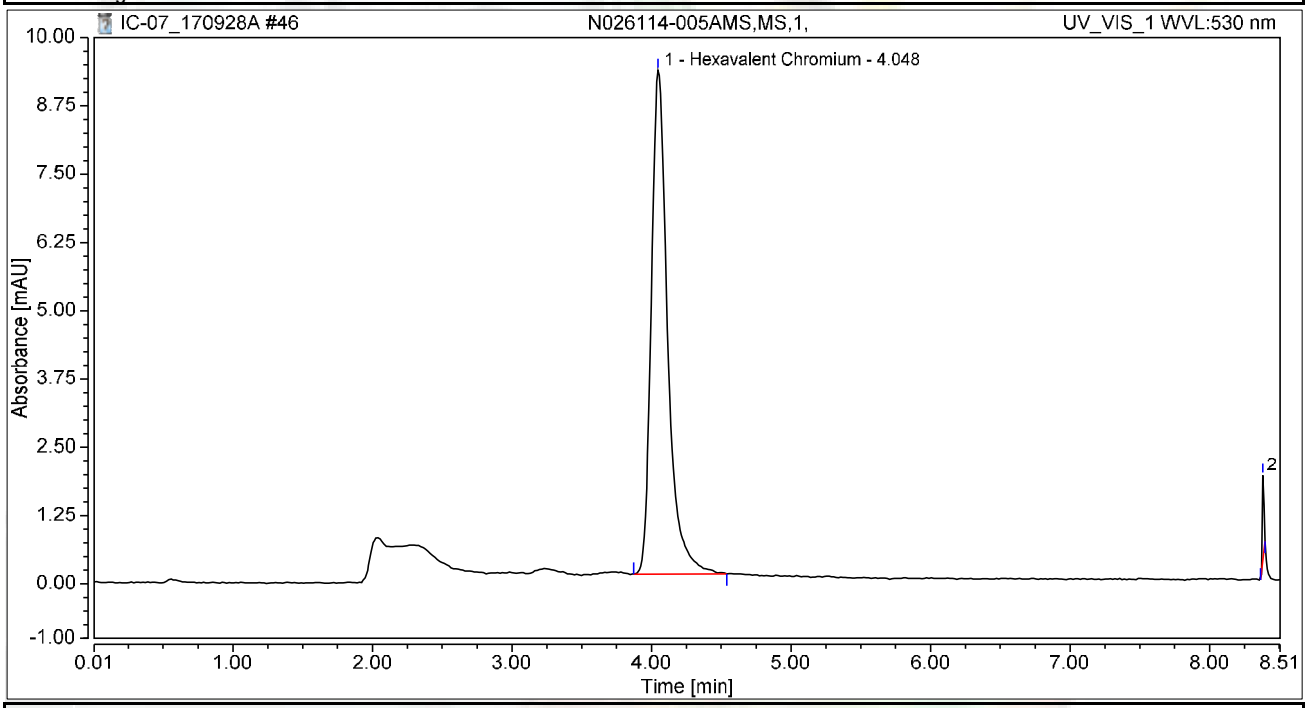
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.996	7.262	100.00	100.00	3.8383
Total:			**0.996**	**7.262**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

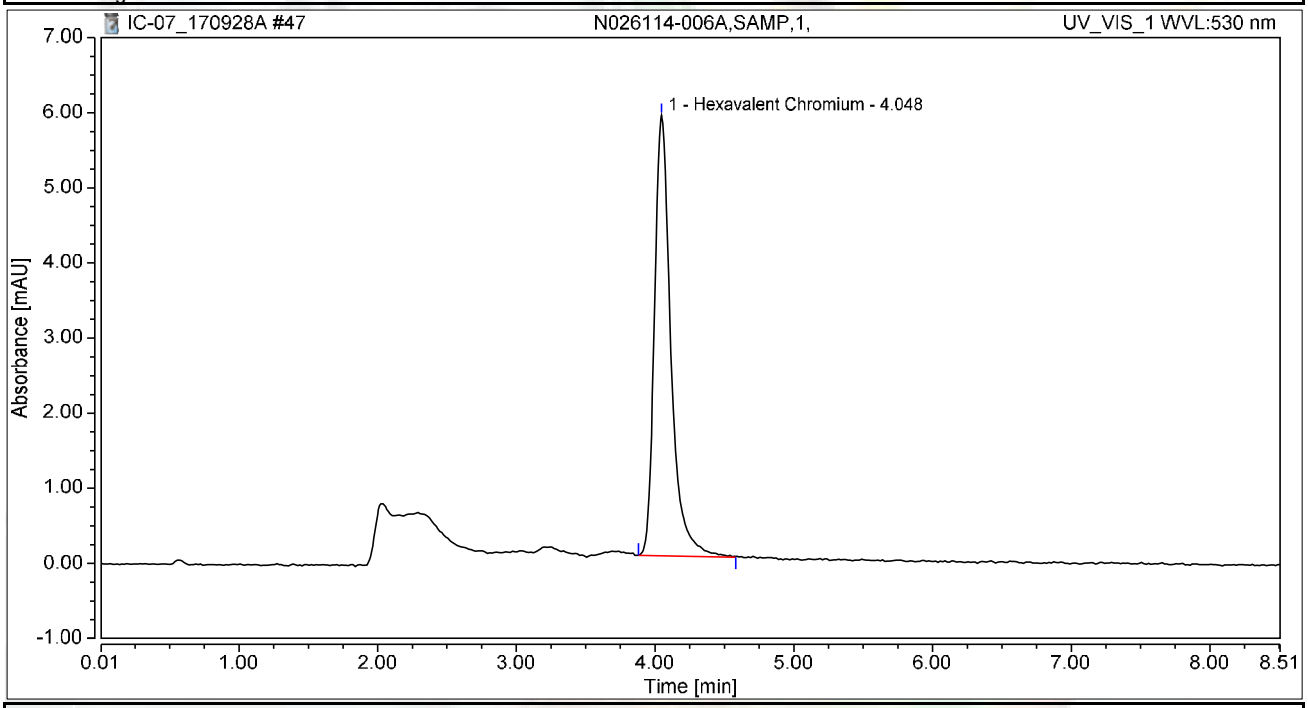
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.256	9.216	98.49	85.54	4.8375
2		8.381	0.019	1.558	1.51	14.46	n.a.
Total:			**1.275**	**10.774**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

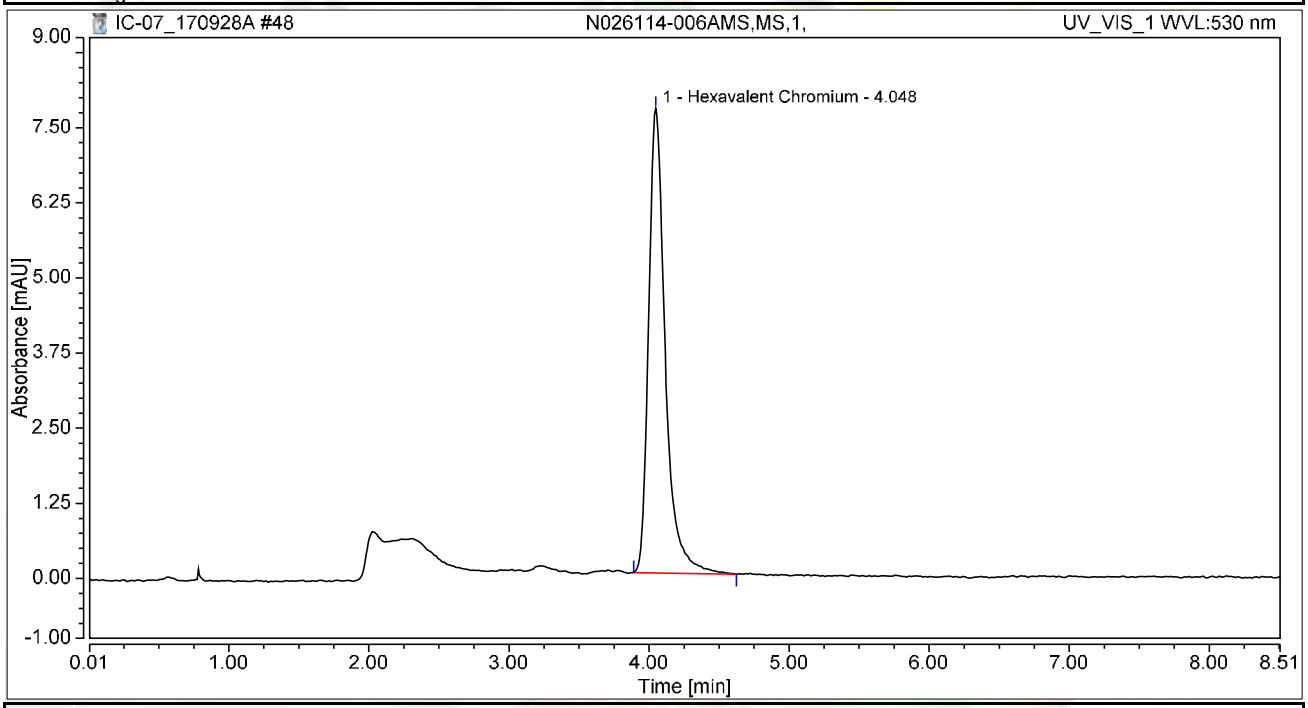
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.805	5.863	100.00	100.00	3.1014
Total:			**0.805**	**5.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

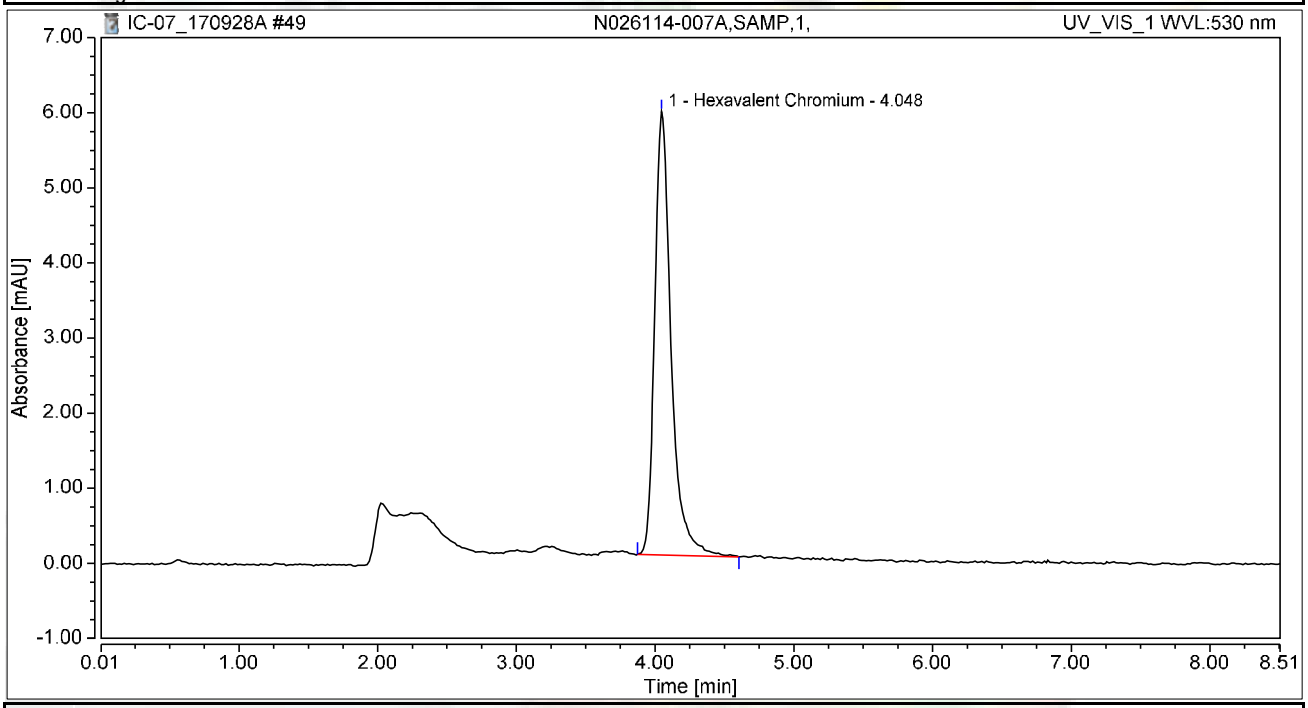
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.064	7.735	100.00	100.00	4.0999
Total:			**1.064**	**7.735**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

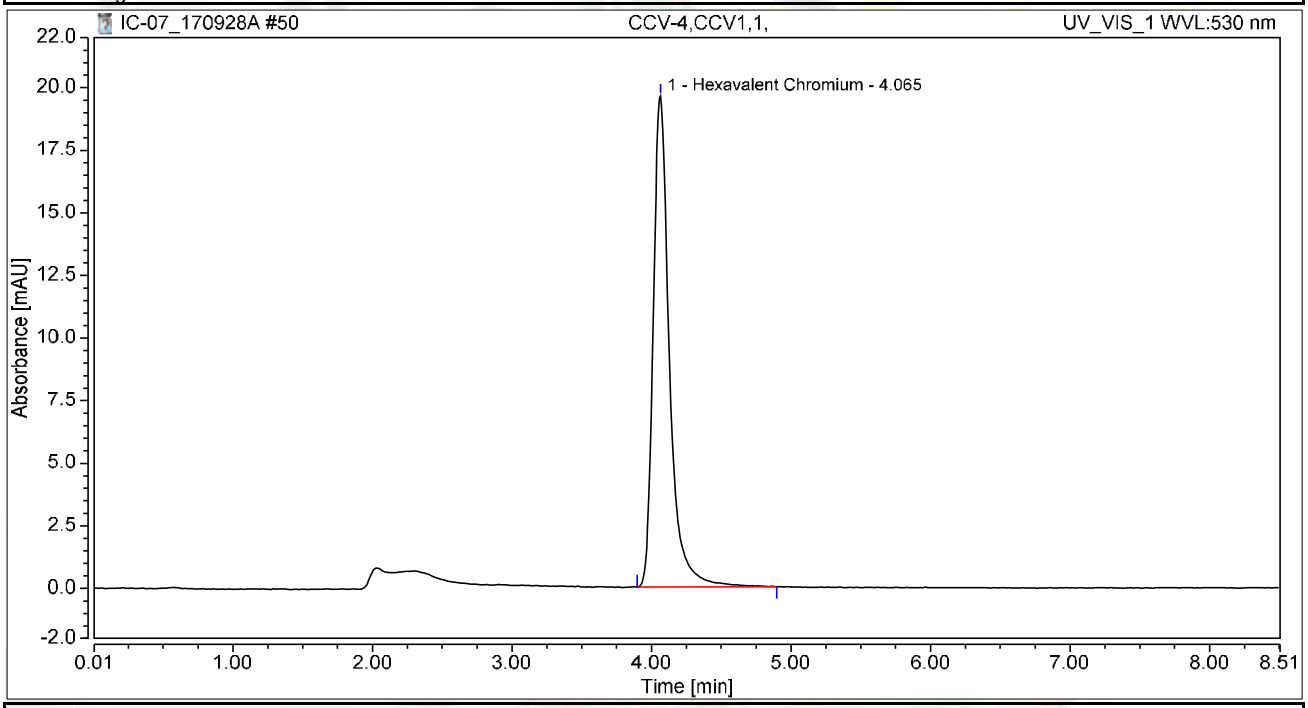
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.807	5.904	100.00	100.00	3.1096
Total:			**0.807**	**5.904**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

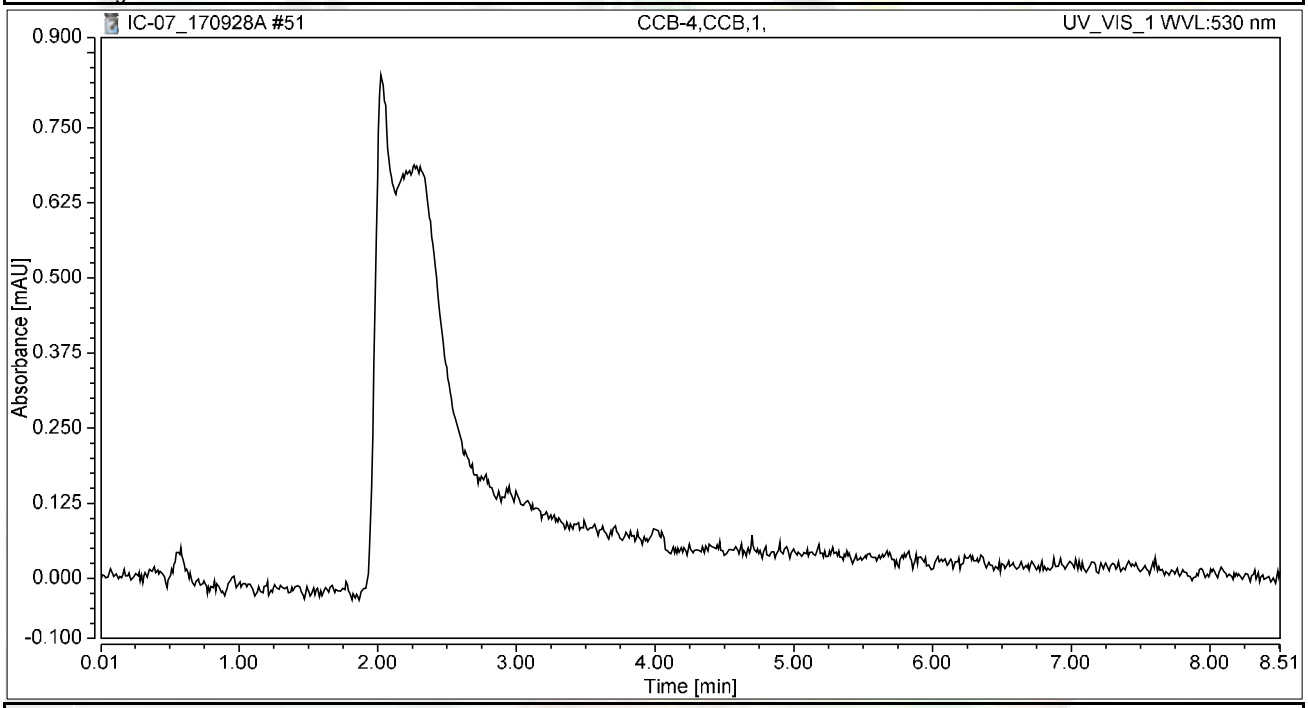
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.639	19.610	100.00	100.00	10.1660
Total:			**2.639**	**19.610**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

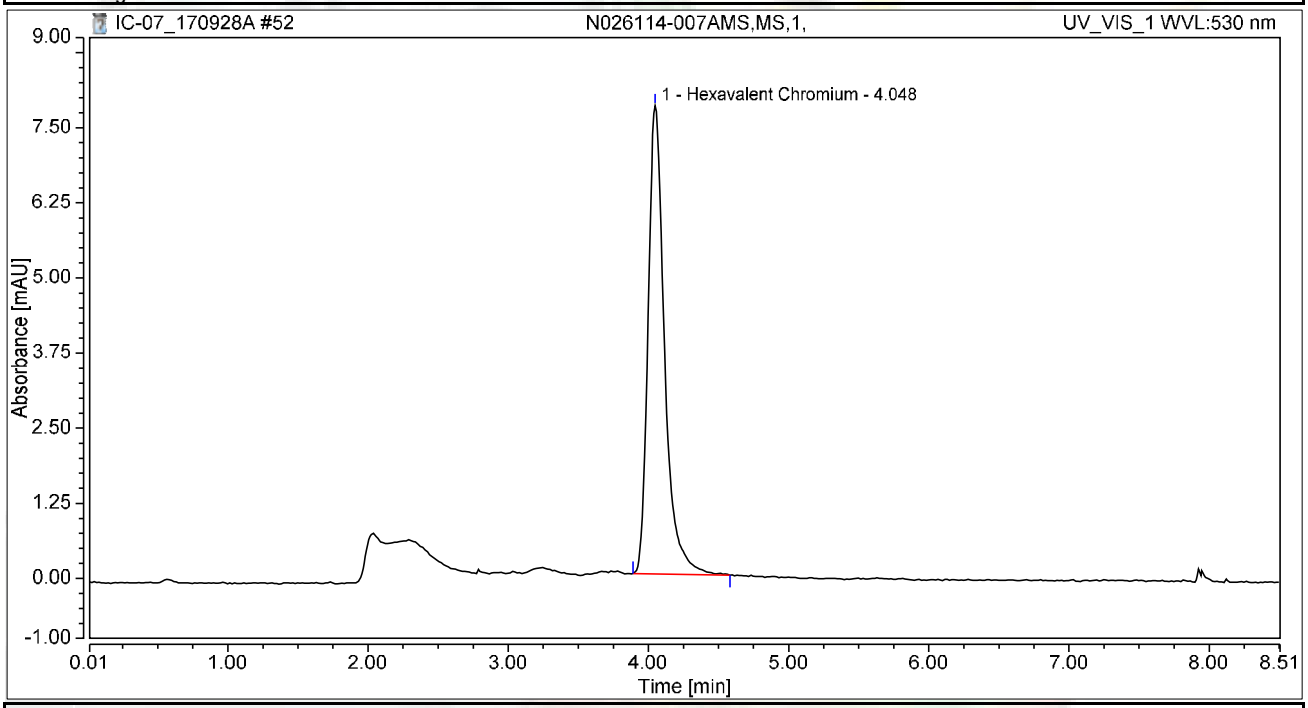
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-007AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

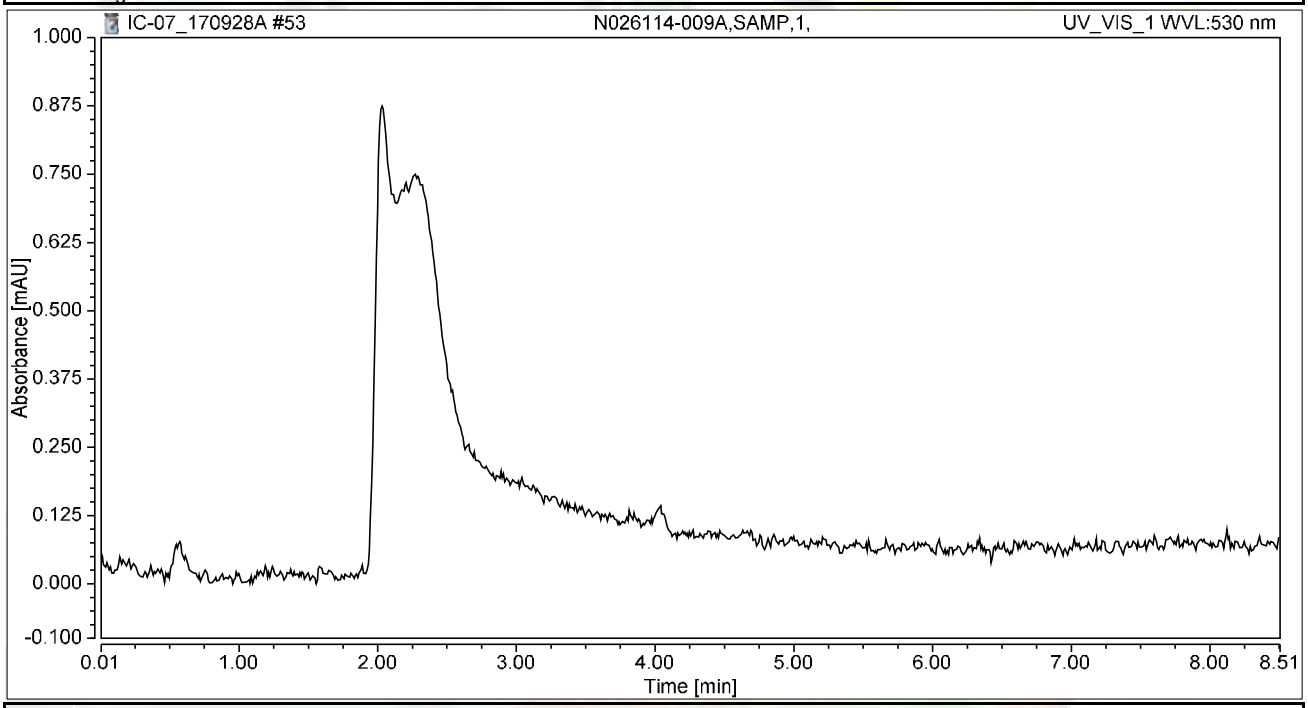
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.059	7.792	100.00	100.00	4.0813
Total:			**1.059**	**7.792**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

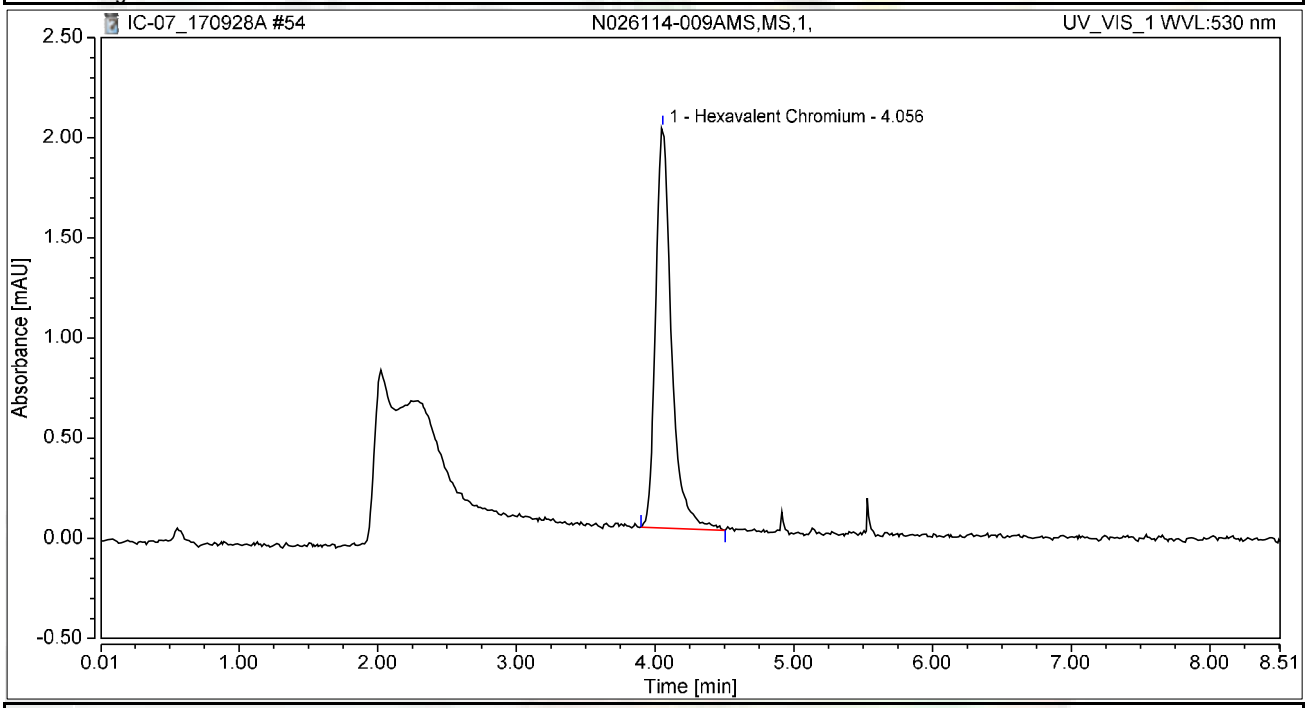
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-009AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

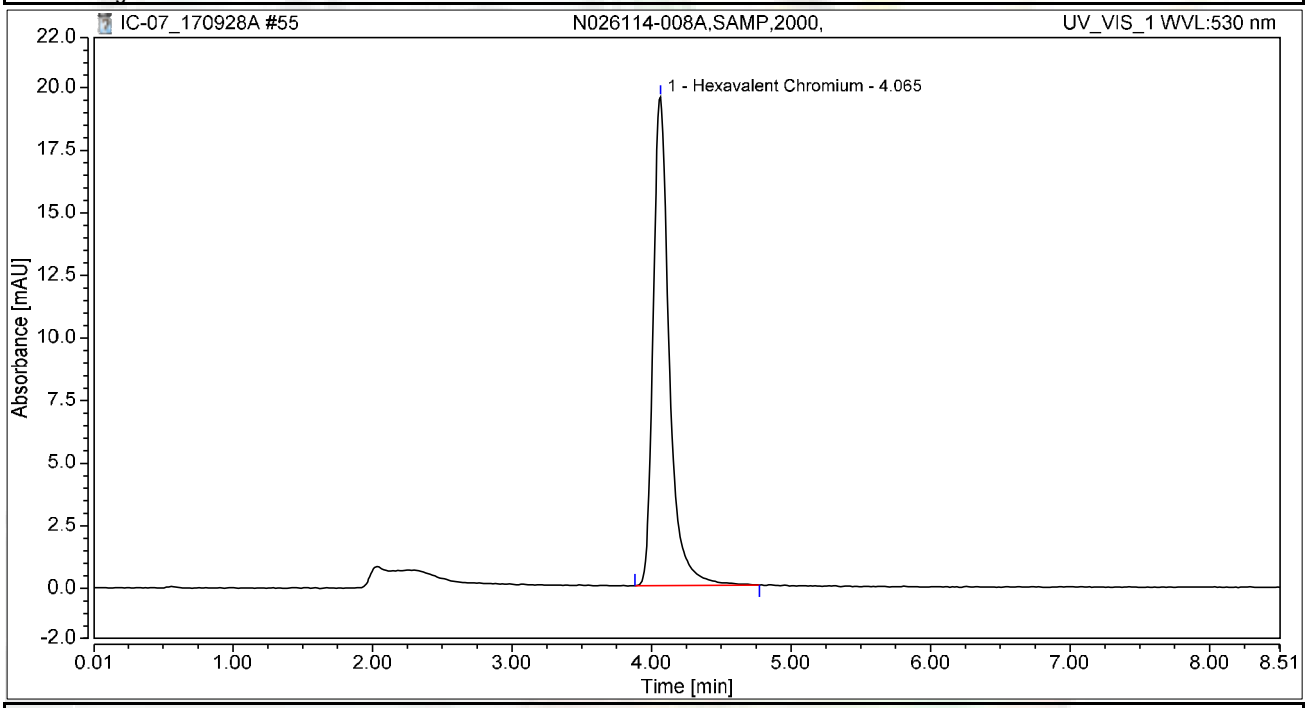
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.265	1.998	100.00	100.00	1.0197
Total:			**0.265**	**1.998**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-008A,SAMP,2000,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

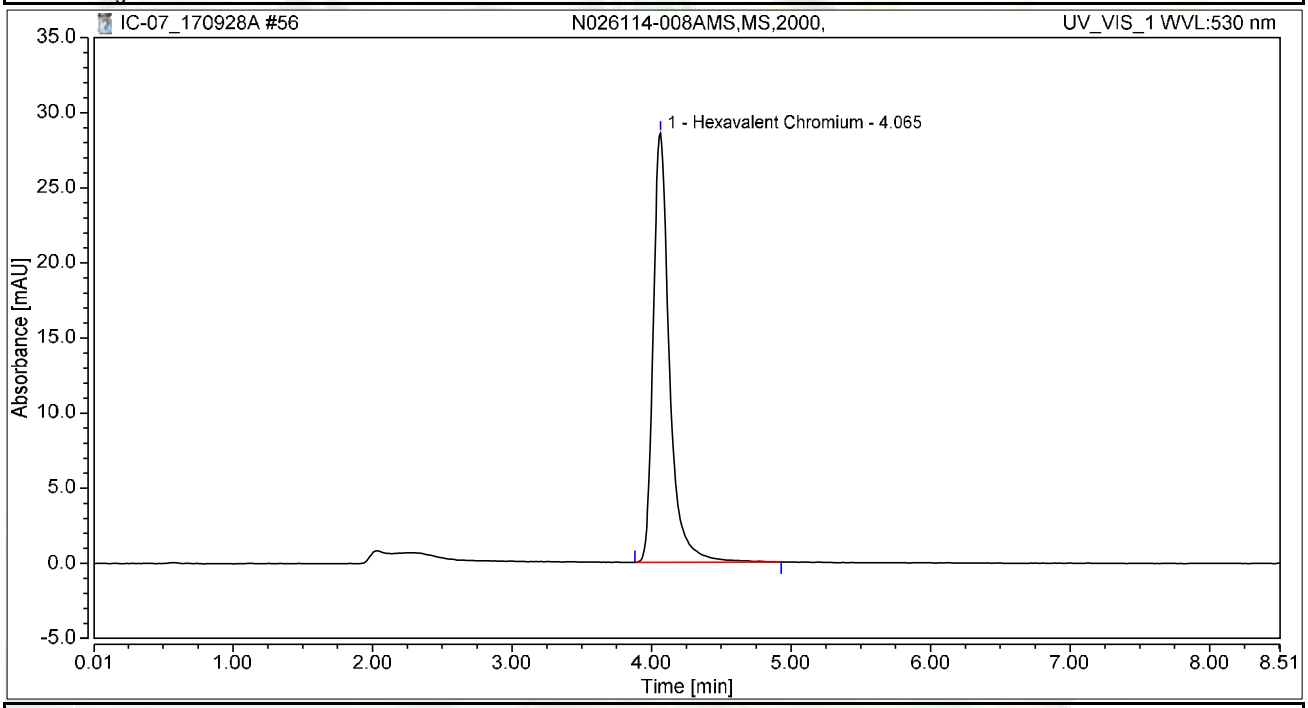
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.618	19.508	100.00	100.00	10.0885
Total:			**2.618**	**19.508**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-008AMS,MS,2000,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

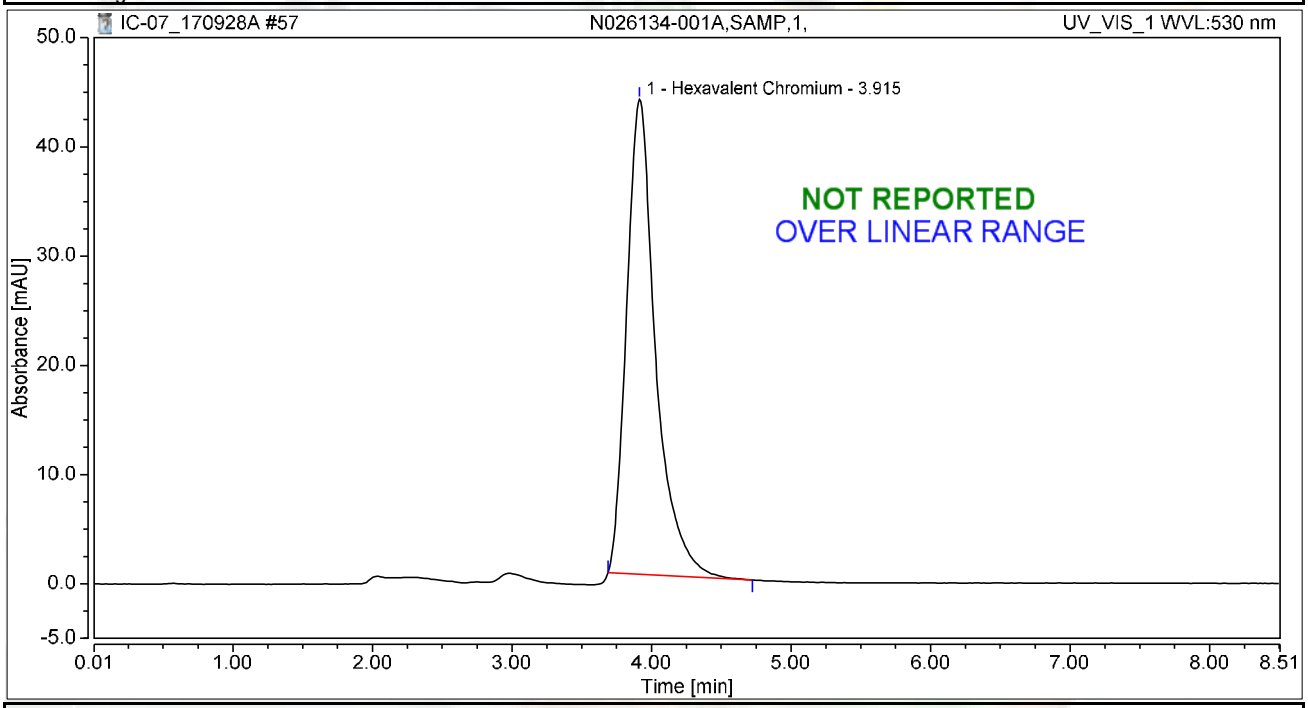
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.850	28.568	100.00	100.00	14.8335
Total:			**3.850**	**28.568**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

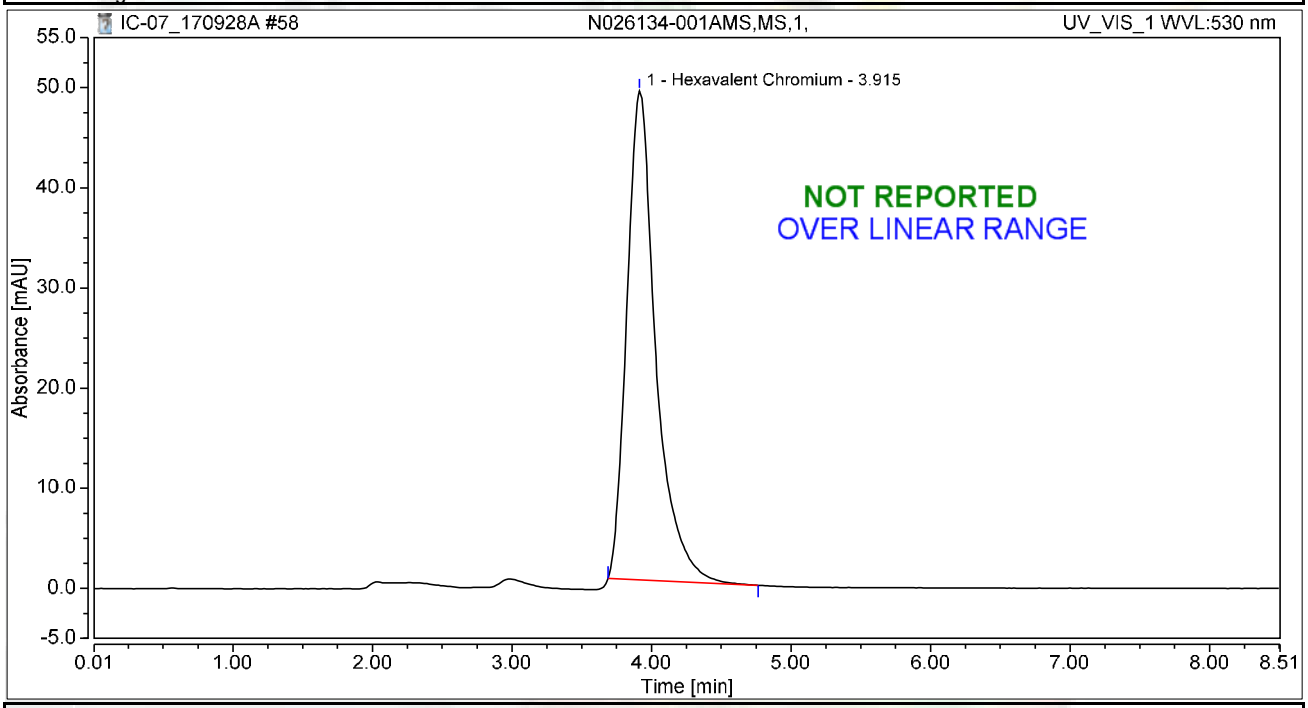
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.915	10.469	43.458	100.00	100.00	40.3348
Total:			**10.469**	**43.458**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

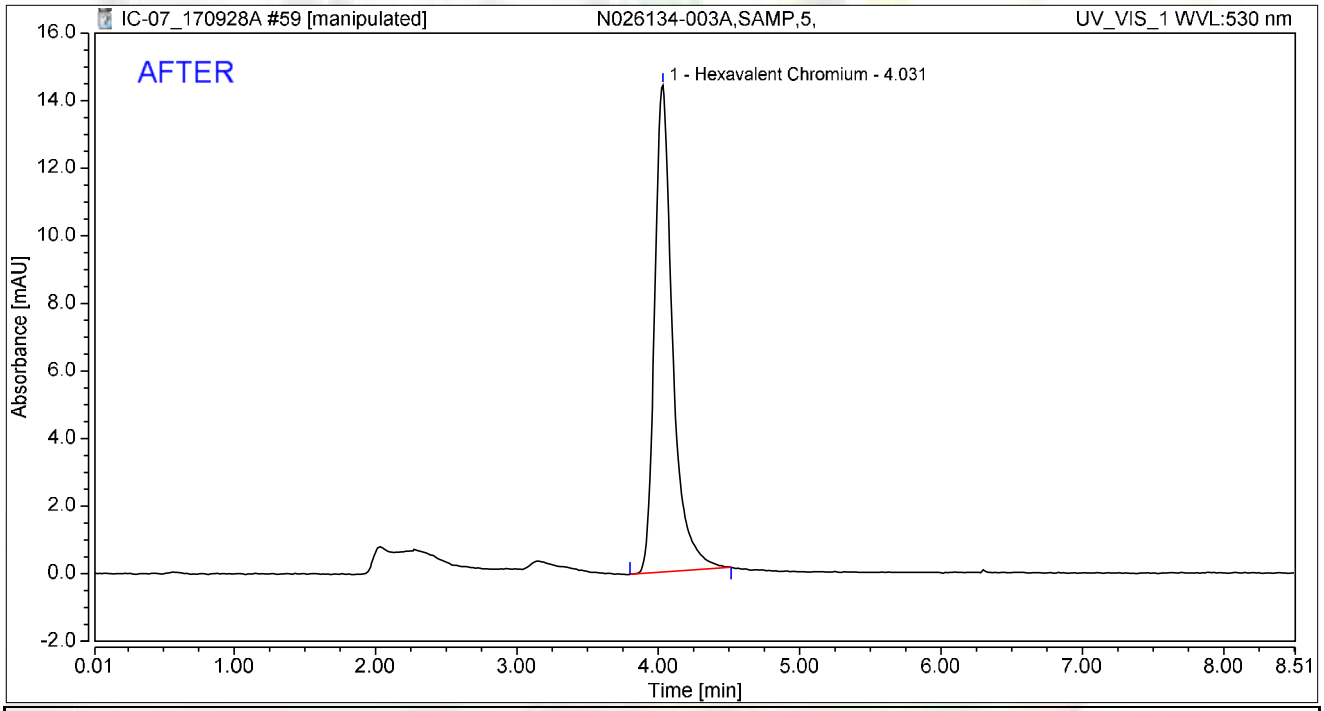
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.915	11.757	48.815	100.00	100.00	45.2976
Total:			**11.757**	**48.815**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	2.136	14.405	100.00	100.00	8.2284
Total:			**2.136**	**14.405**	**100.00**	**100.00**	

rba 10/5/2017

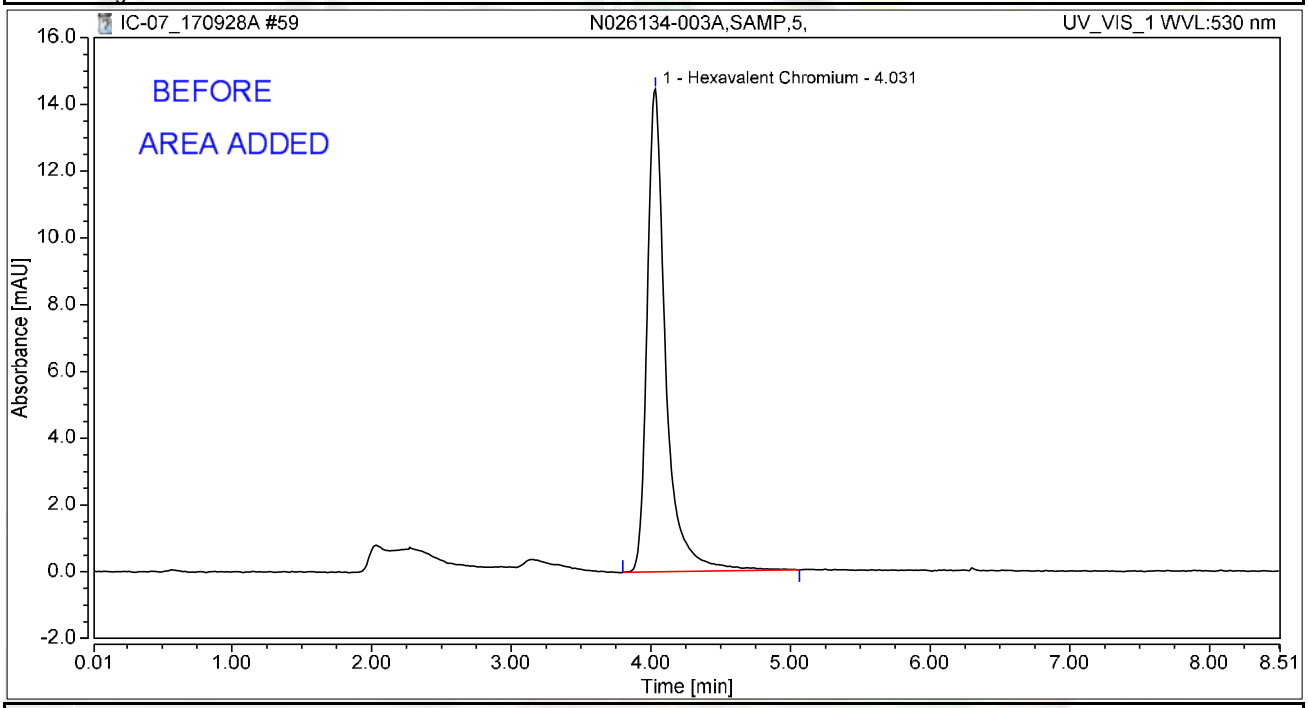
Reviewed by: Dmy 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	2.231	14.459	100.00	100.00	8.5943
Total:			**2.231**	**14.459**	**100.00**	**100.00**	

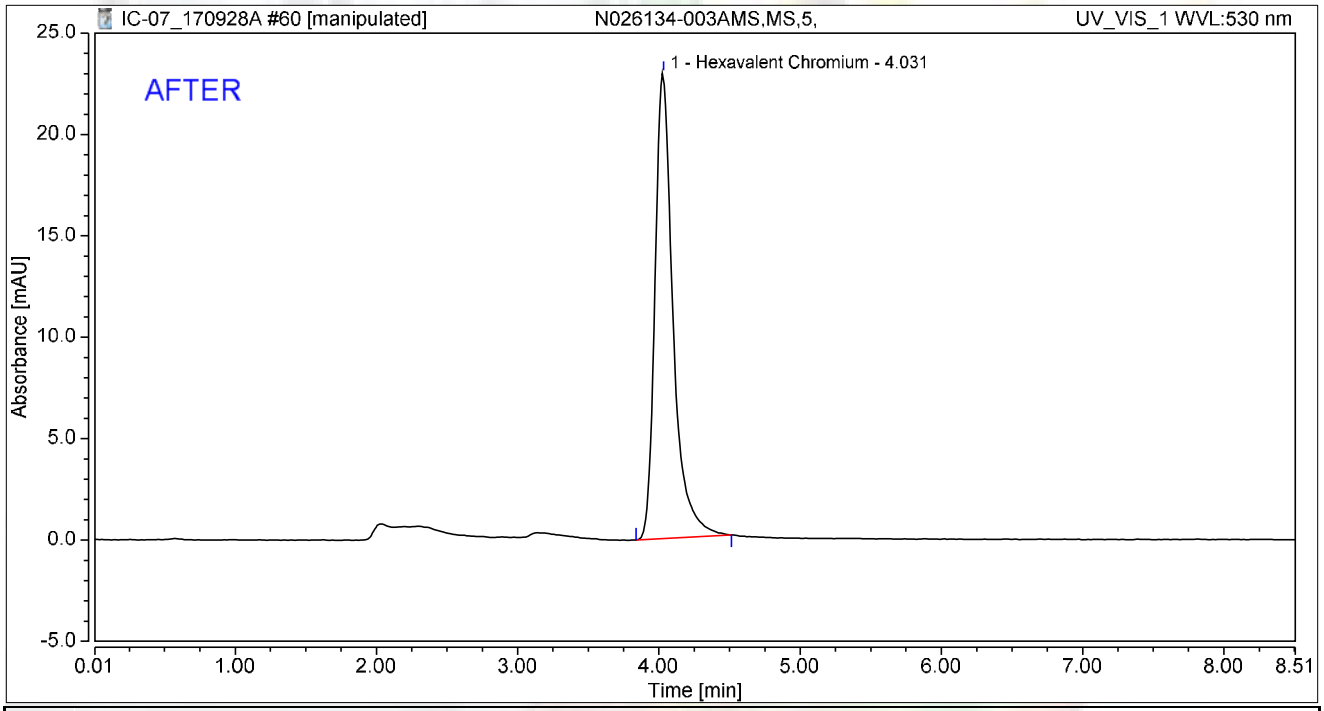
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	3.407	22.949	100.00	100.00	13.1287
Total:			**3.407**	**22.949**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: My first report/Integration 10/10/2017

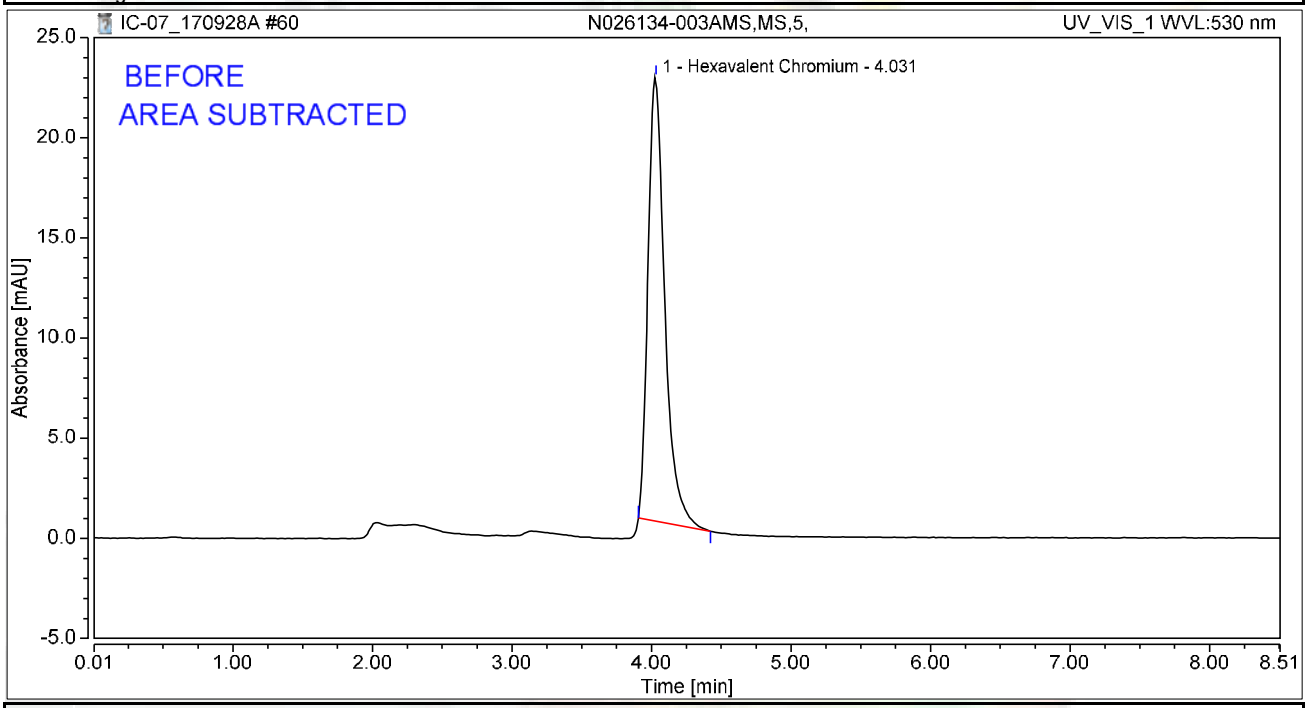
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	3.089	22.150	100.00	100.00	11.9004
Total:			**3.089**	**22.150**	**100.00**	**100.00**	

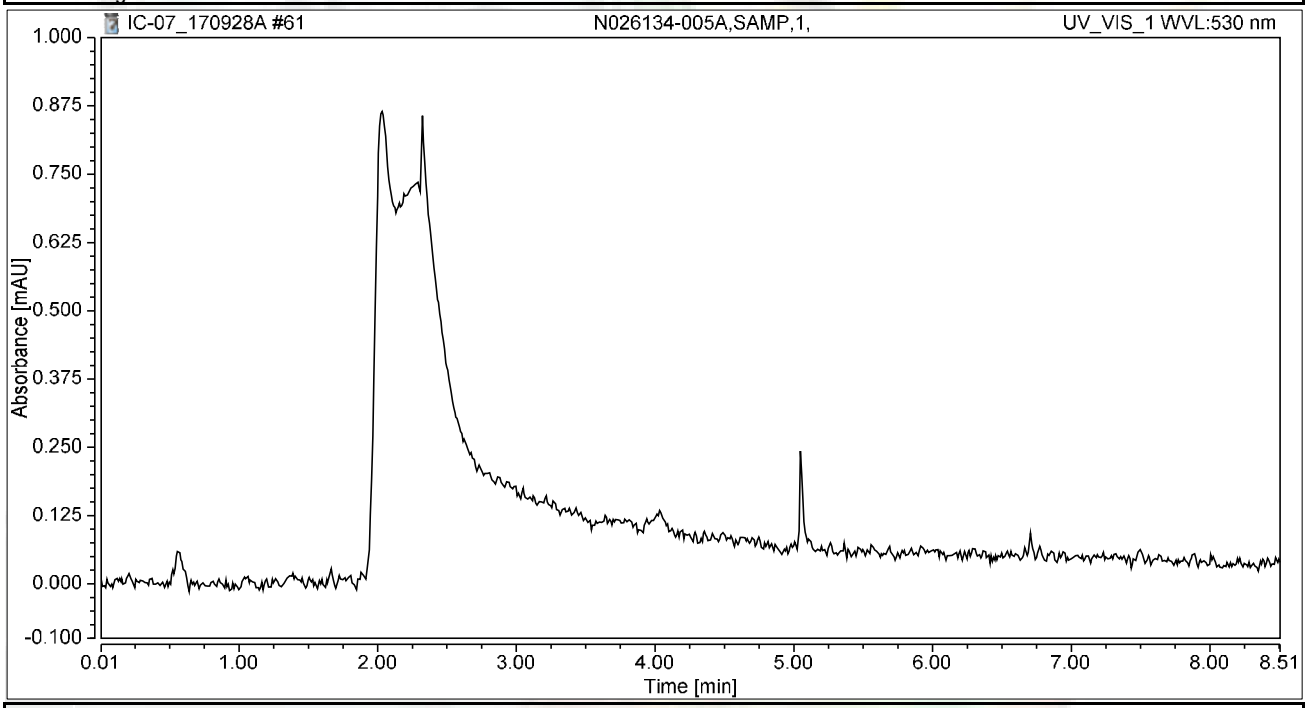
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

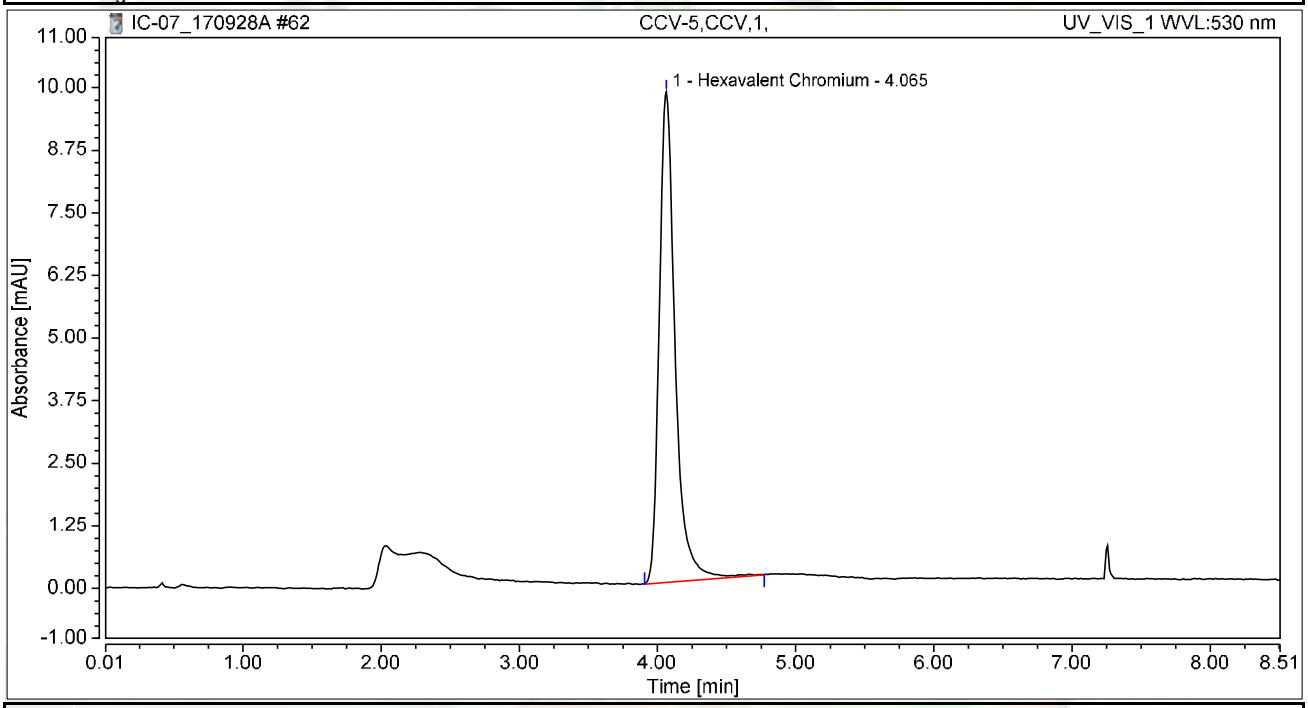
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

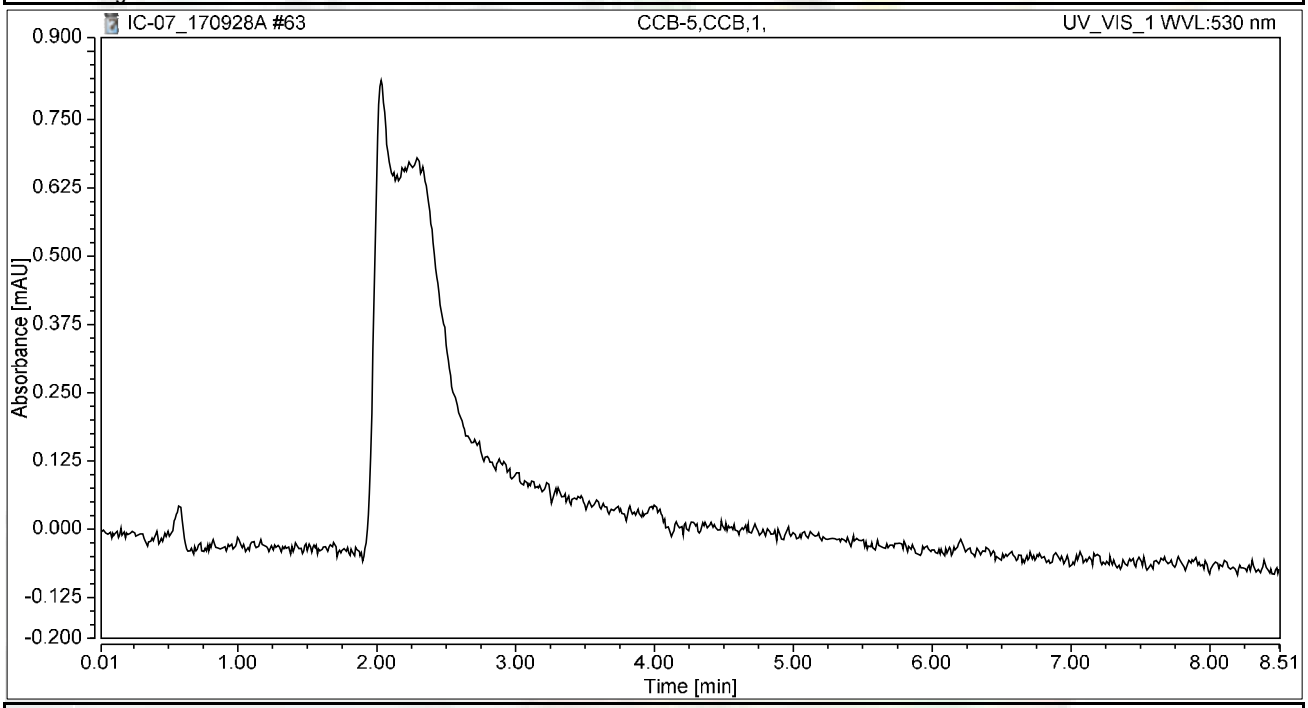
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.304	9.803	100.00	100.00	5.0228
Total:			**1.304**	**9.803**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

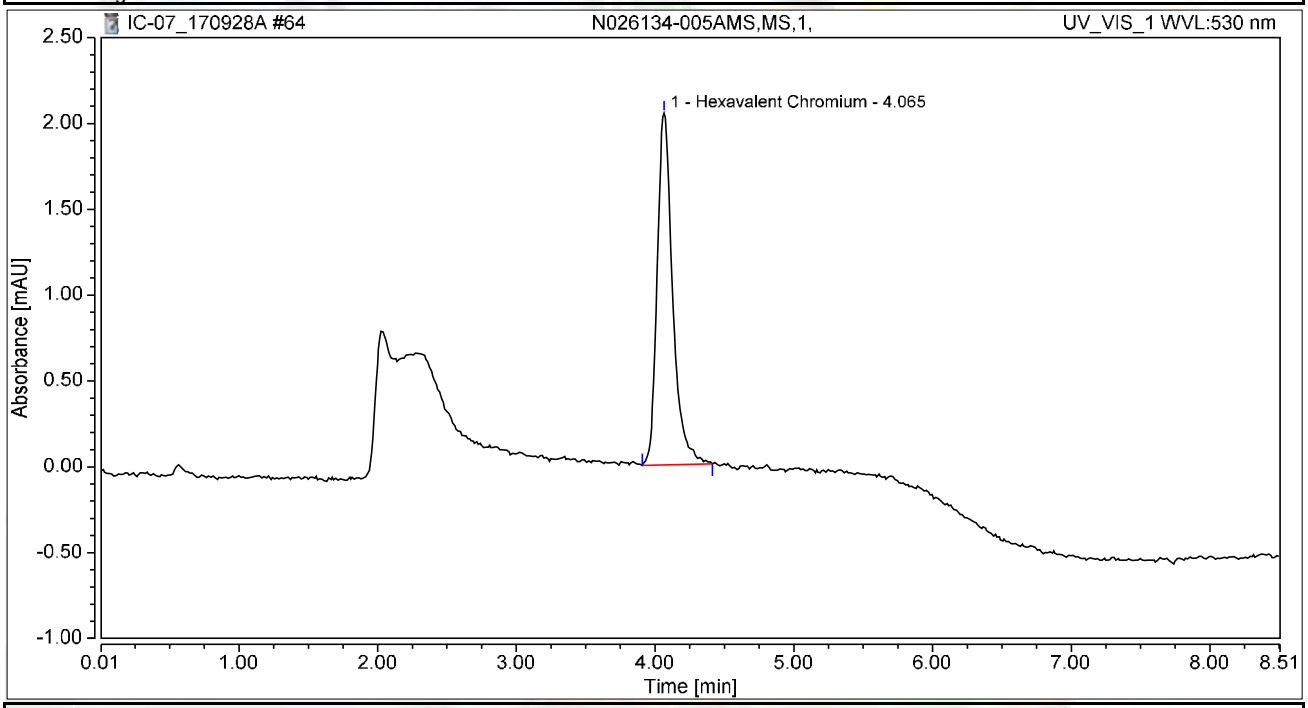
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

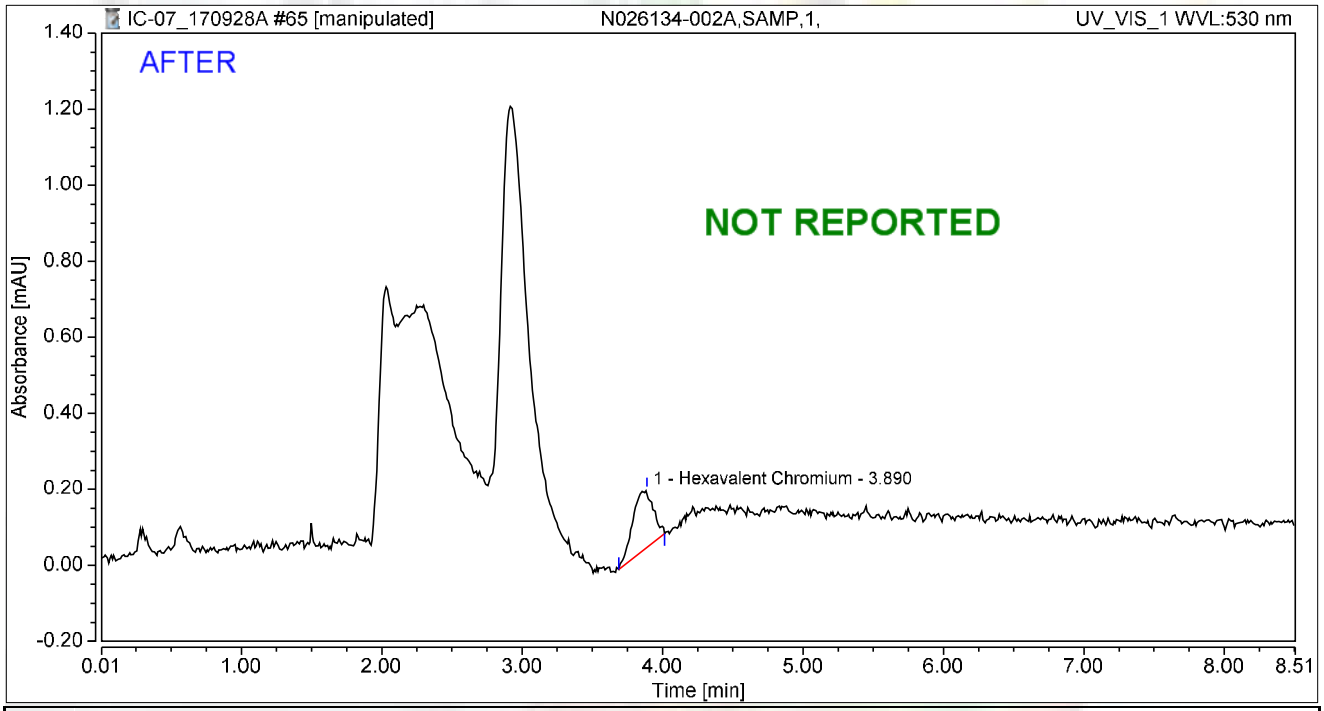
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.266	2.051	100.00	100.00	1.0231
Total:			**0.266**	**2.051**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.890	0.027	0.152	100.00	100.00	0.1042
Total:			**0.027**	**0.152**	**100.00**	**100.00**	

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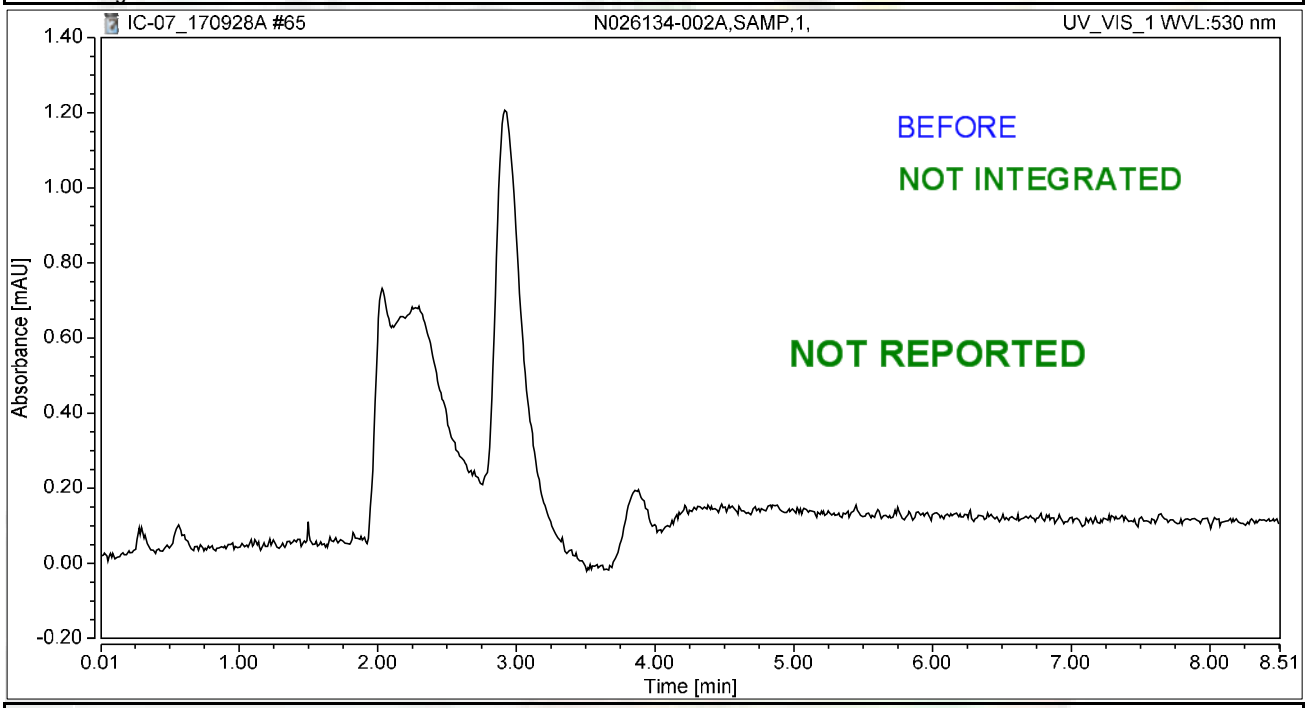
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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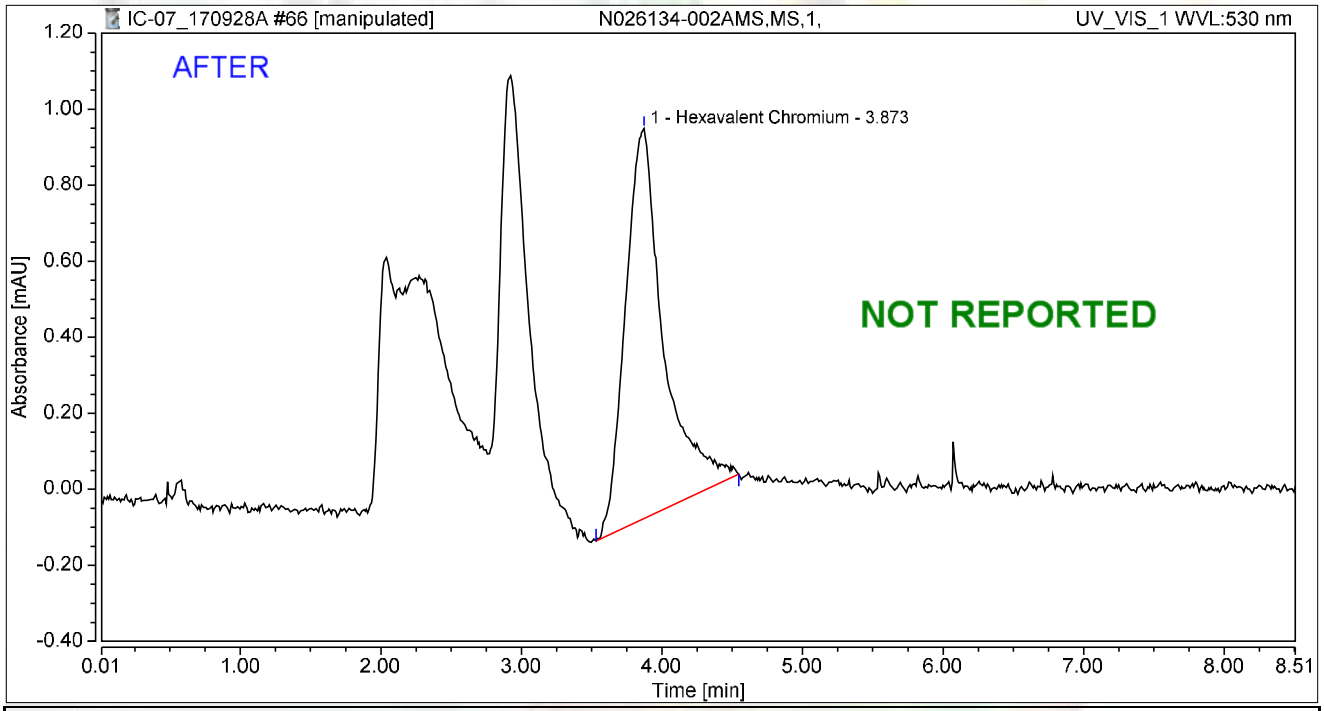
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.873	0.325	1.026	100.00	100.00	1.2514
Total:			**0.325**	**1.026**	**100.00**	**100.00**	

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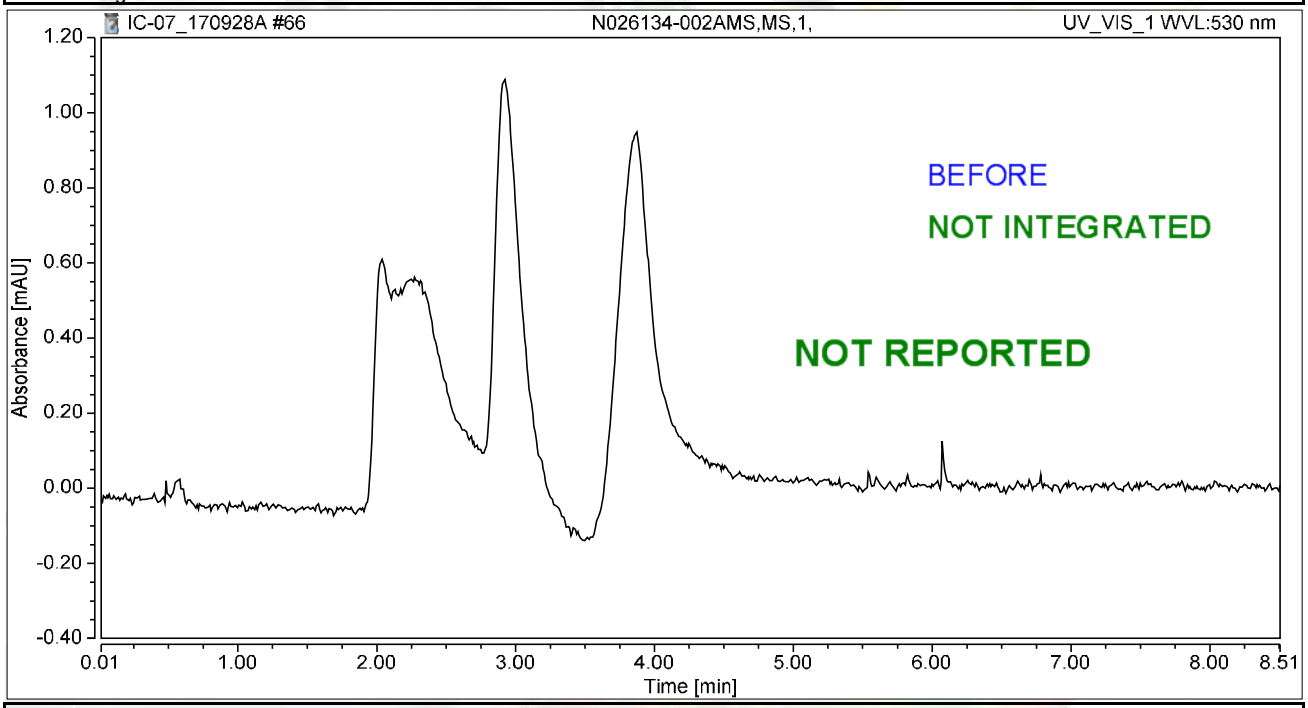
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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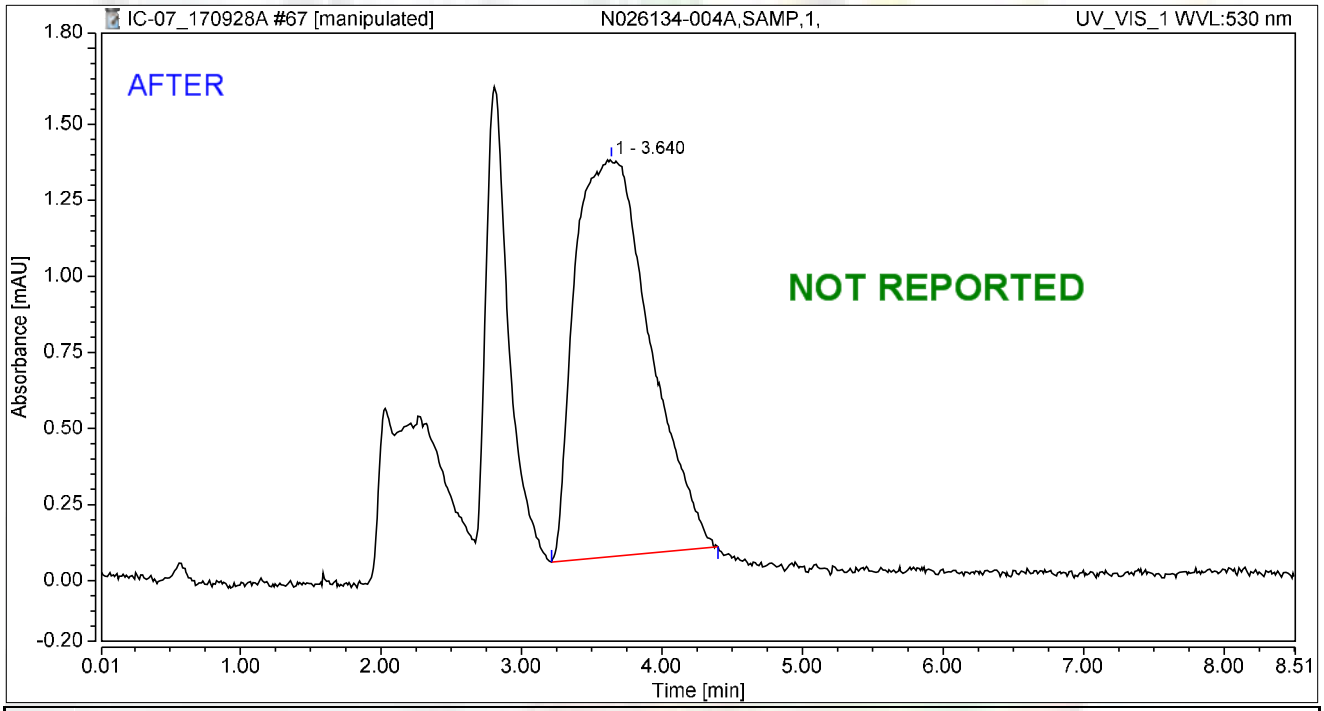
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.640	0.806	1.306	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.806**	**1.306**	**100.00**	**100.00**	

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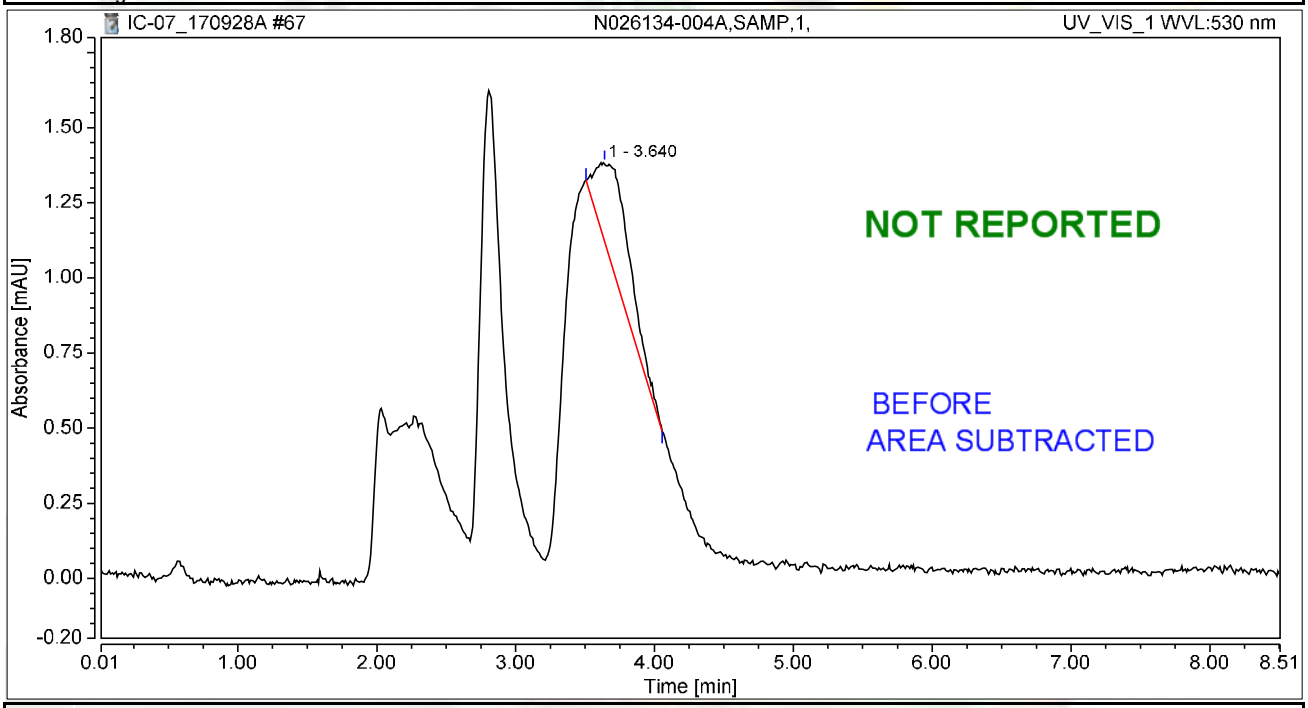
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.640	0.090	0.261	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.090**	**0.261**	**100.00**	**100.00**	

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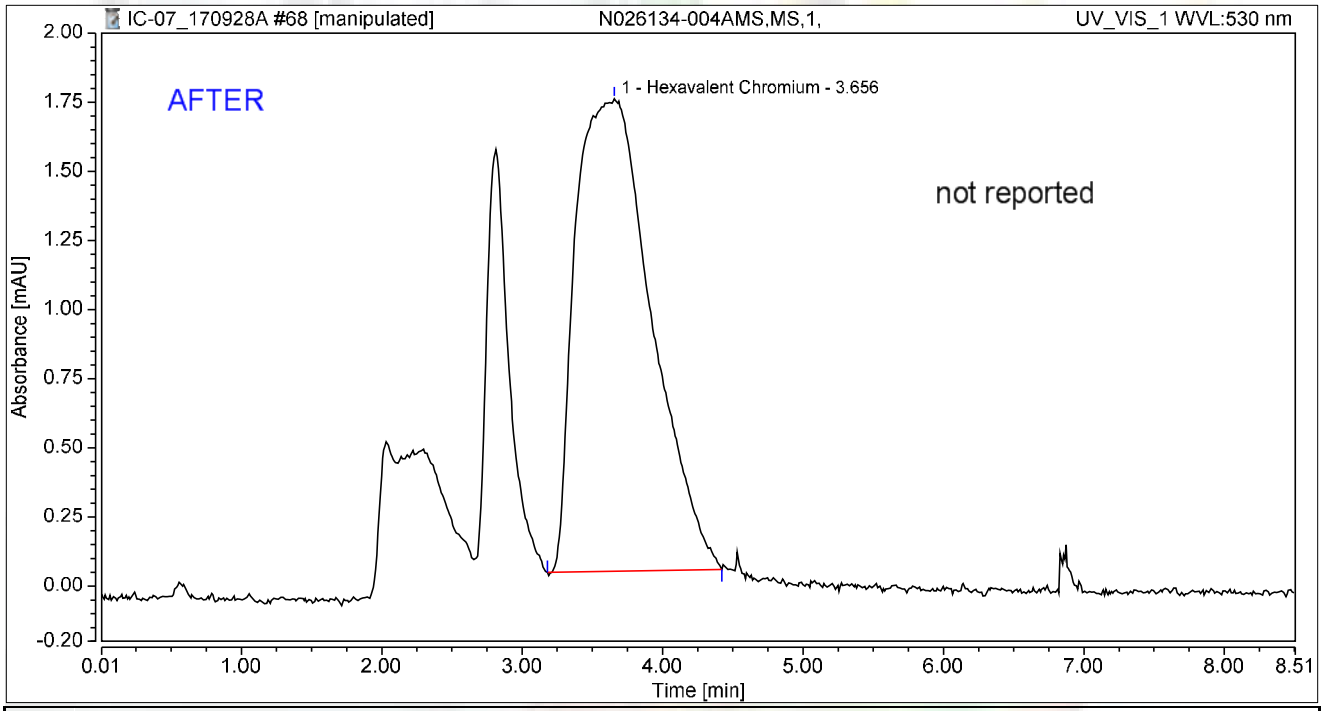
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.656	1.070	1.708	100.00	100.00	4.1208
Total:			**1.070**	**1.708**	**100.00**	**100.00**	

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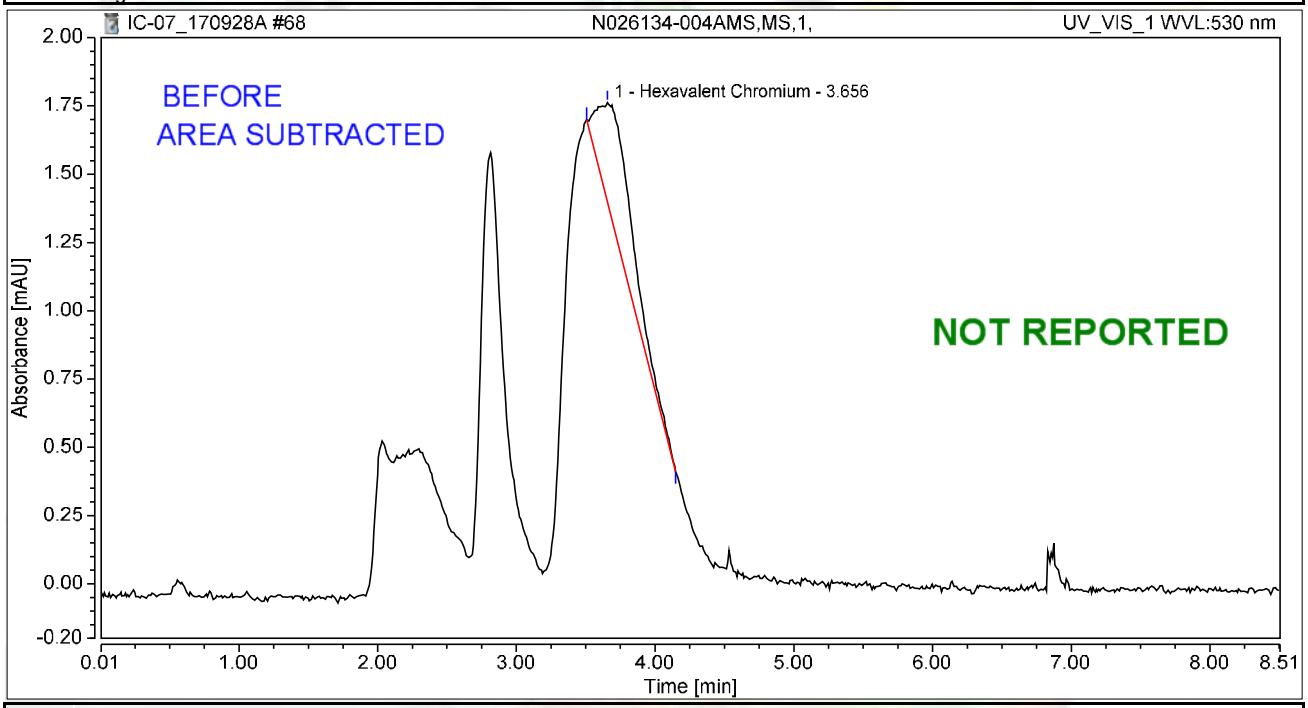
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.656	0.116	0.363	100.00	100.00	0.4484
Total:			**0.116**	**0.363**	**100.00**	**100.00**	

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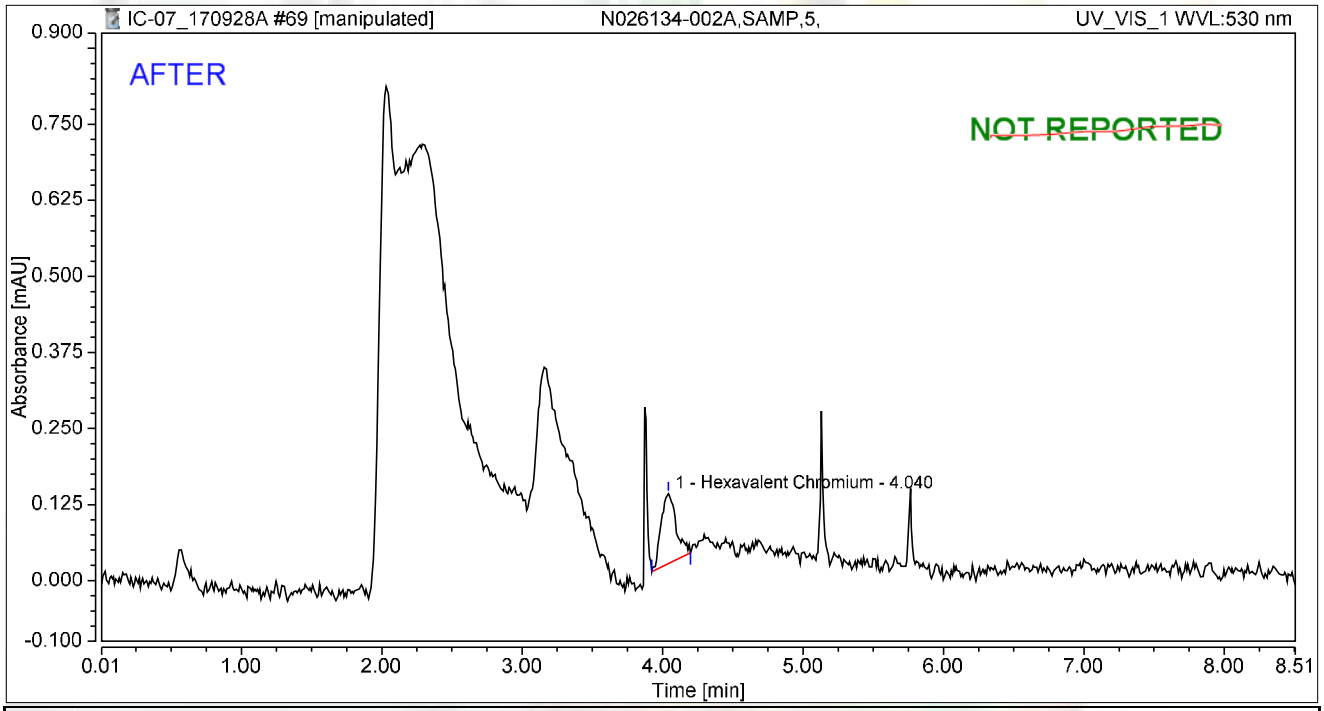
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

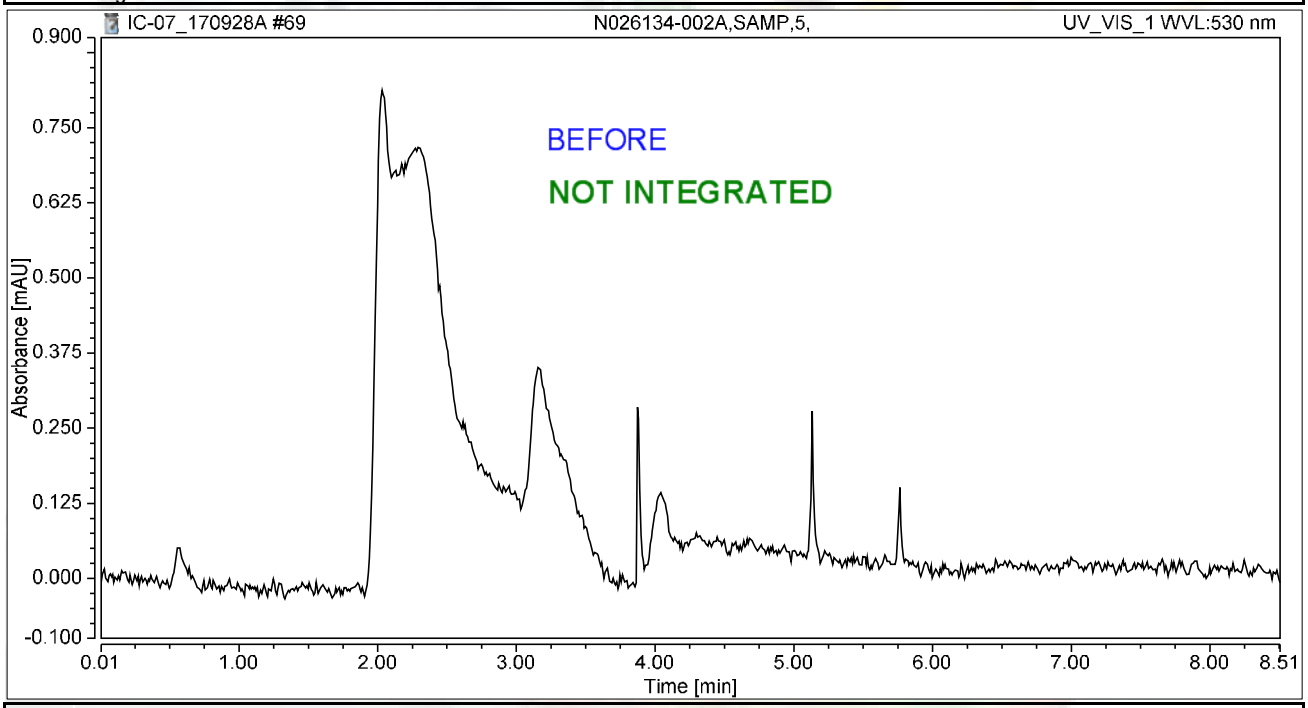
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.014	0.115	100.00	100.00	0.0553
Total:			**0.014**	**0.115**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

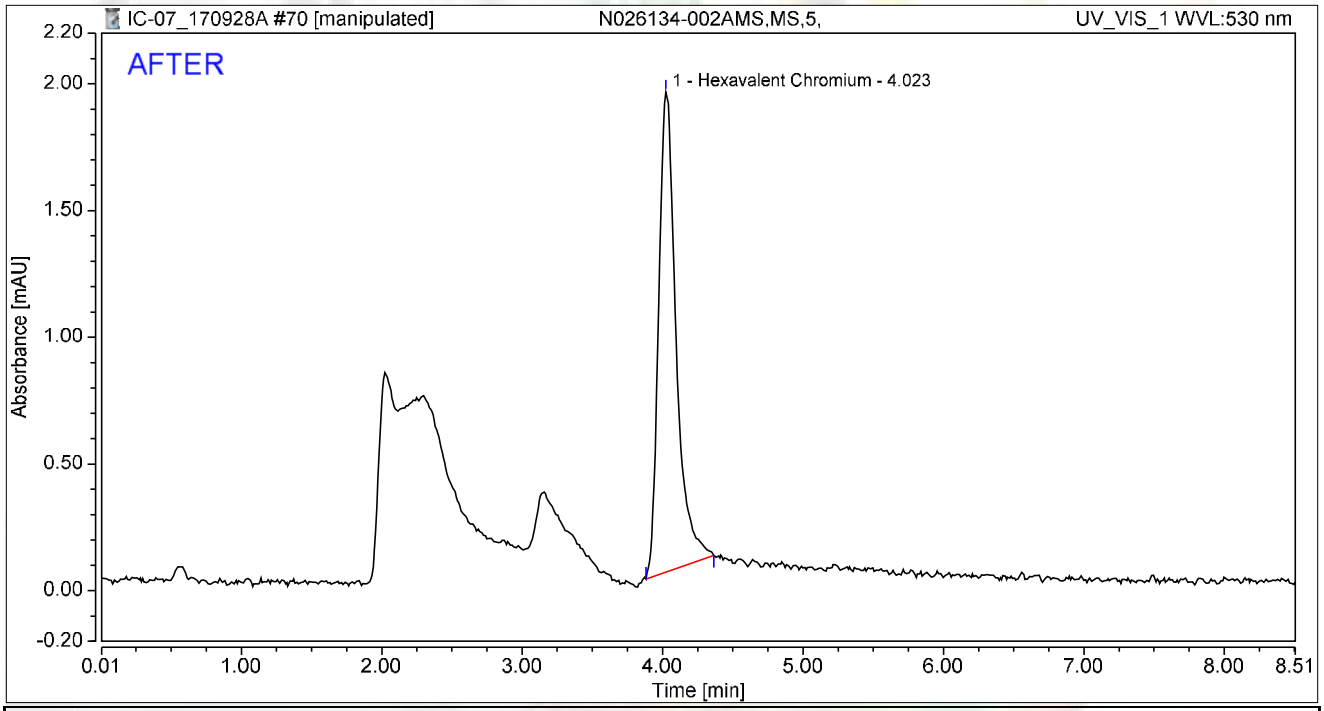
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.273	1.895	100.00	100.00	1.0536
Total:			**0.273**	**1.895**	**100.00**	**100.00**	

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Reviewed by: 10/10/2017

My first report integration

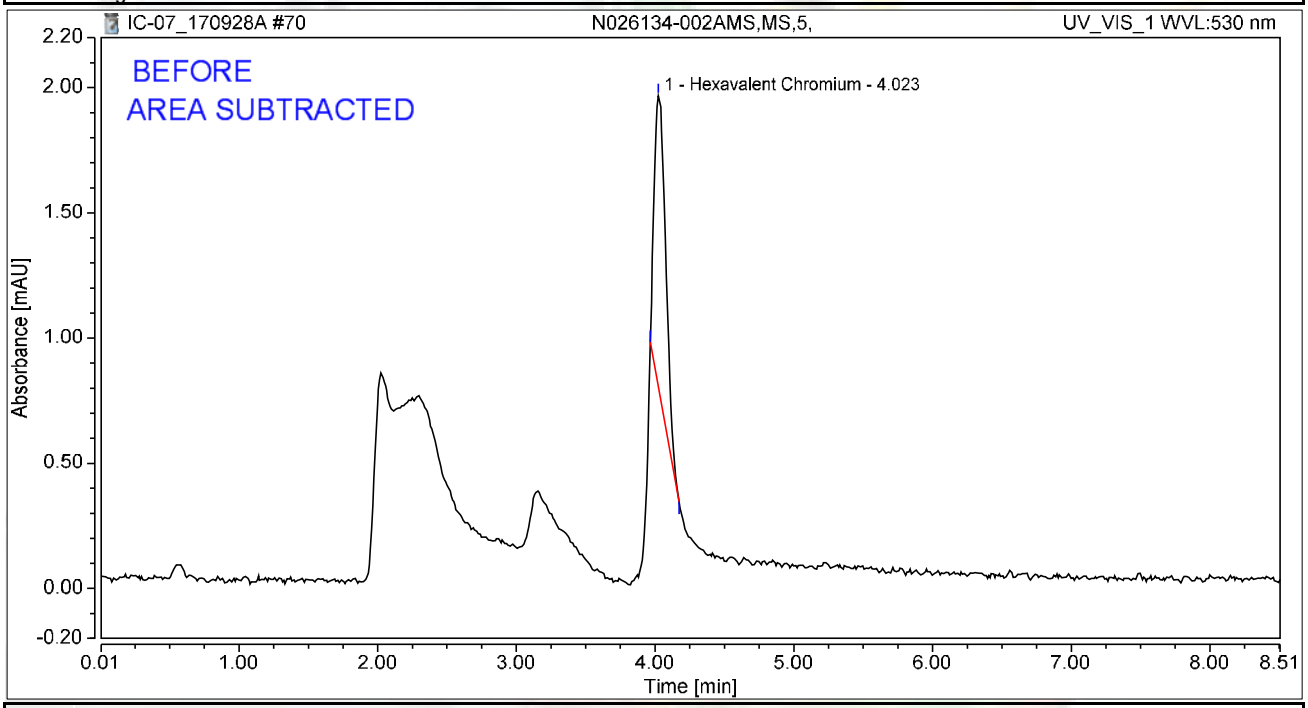
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.113	1.163	100.00	100.00	0.4369
Total:			**0.113**	**1.163**	**100.00**	**100.00**	

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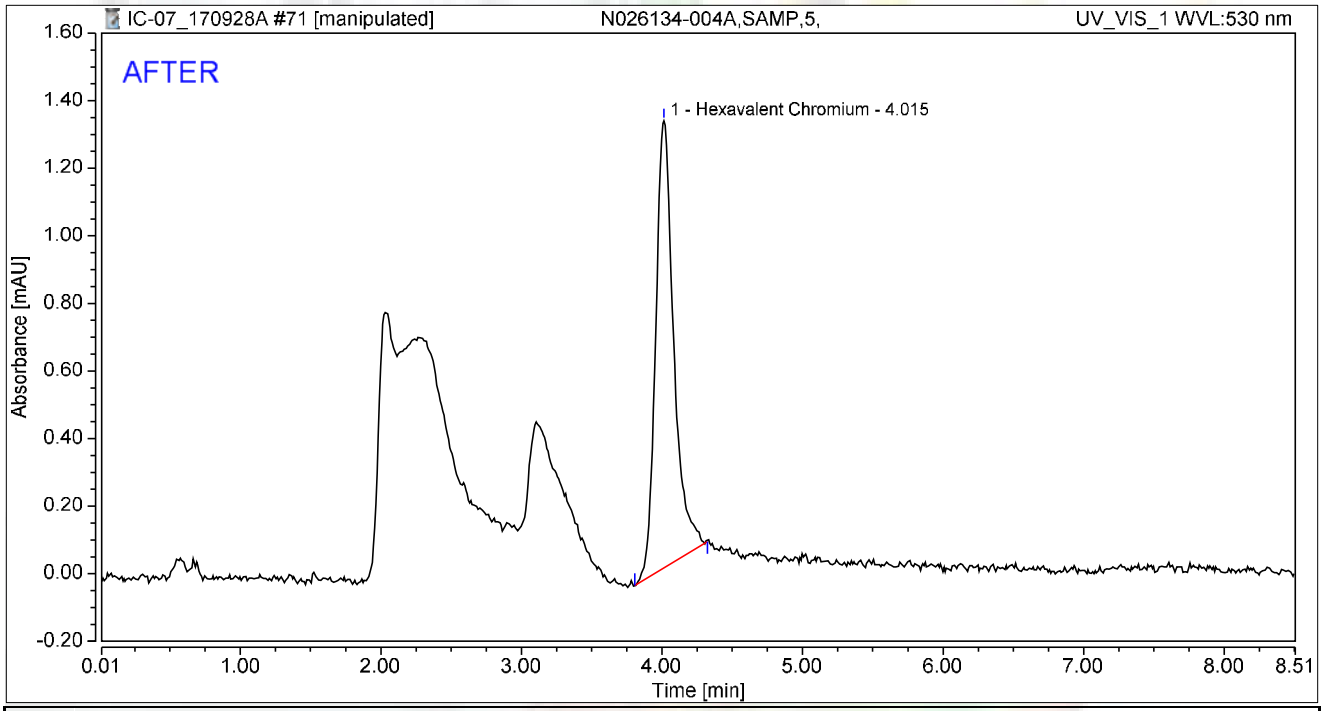
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.197	1.323	100.00	100.00	0.7597
Total:			**0.197**	**1.323**	**100.00**	**100.00**	

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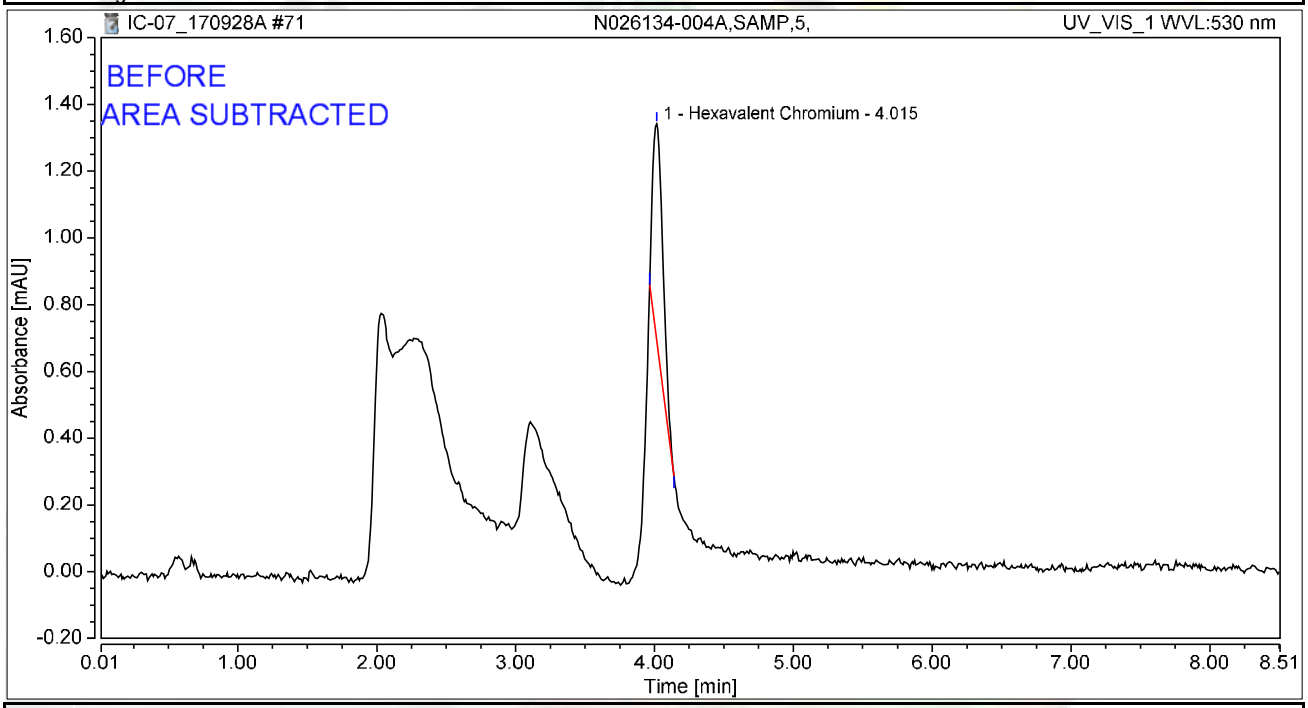
Reviewed by: 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.057	0.645	100.00	100.00	0.2191
Total:			**0.057**	**0.645**	**100.00**	**100.00**	

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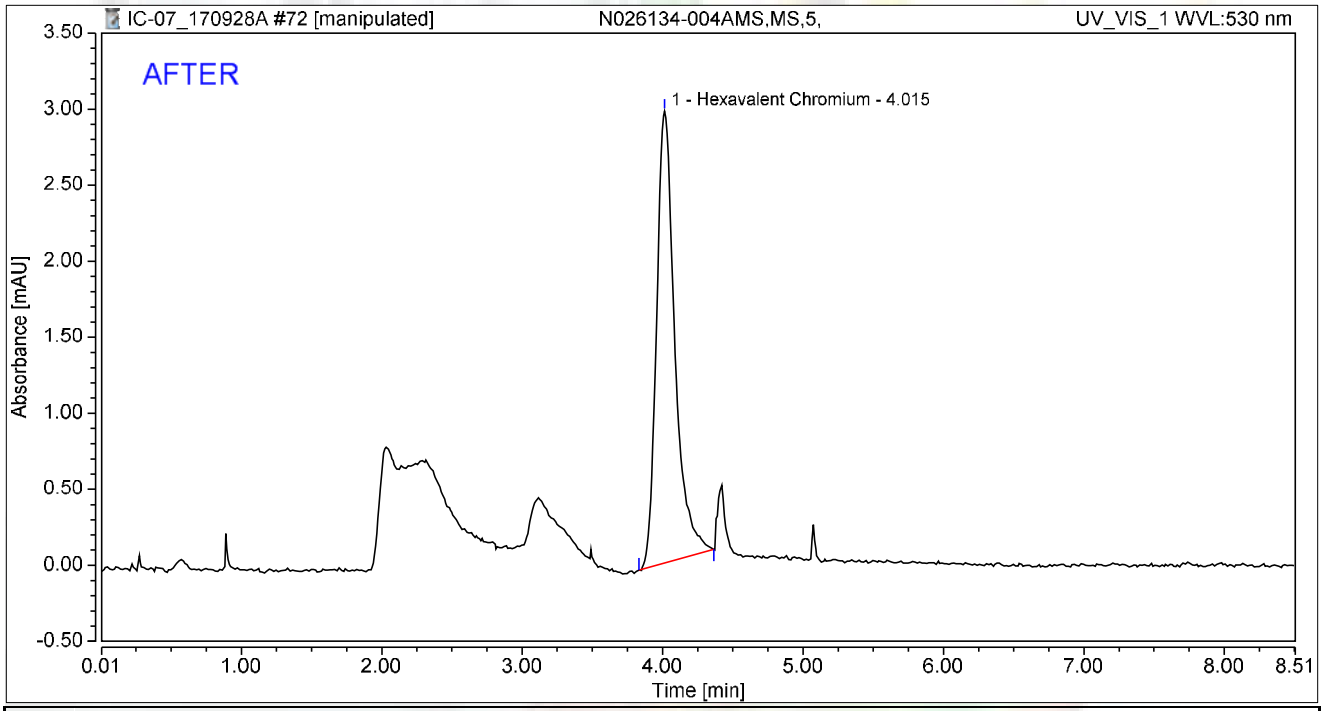
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.447	2.970	100.00	100.00	1.7241
Total:			**0.447**	**2.970**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: 10/10/2017

My first report integration

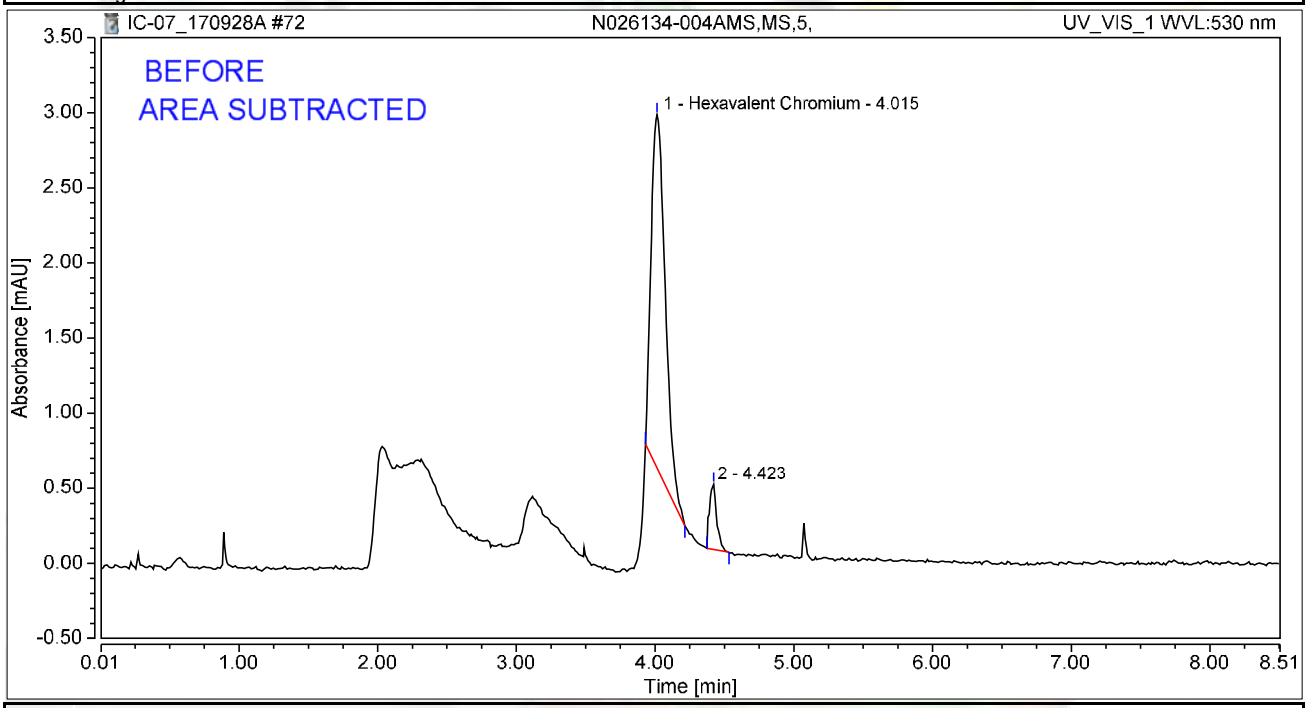
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.278	2.352	91.34	84.44	1.0702
2		4.423	0.026	0.433	8.66	15.56	n.a.
Total:			**0.304**	**2.785**	**100.00**	**100.00**	

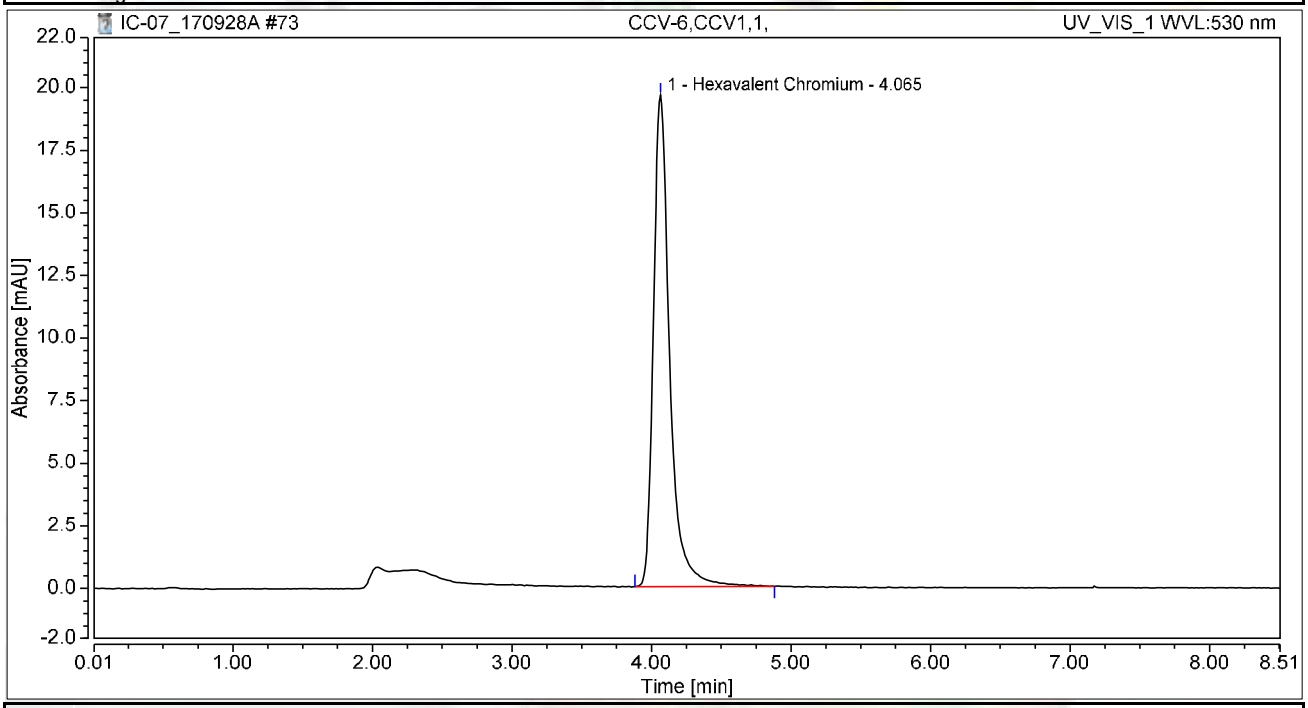
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

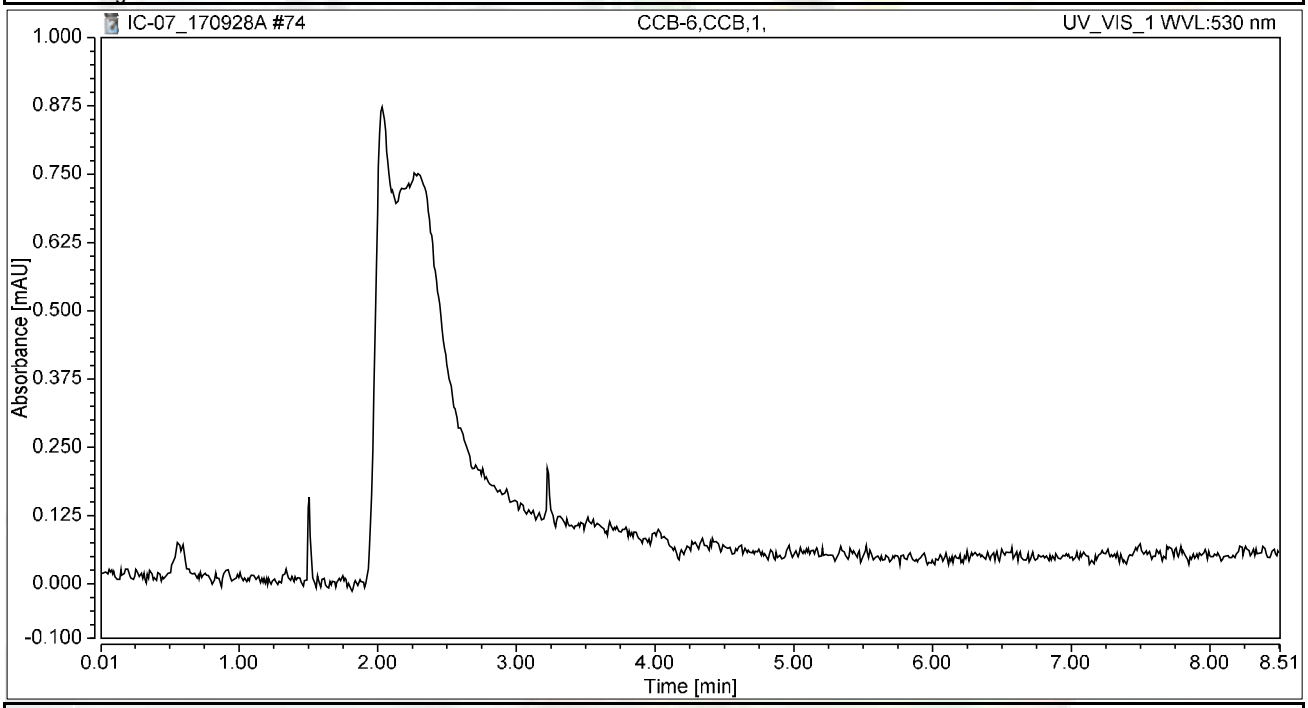
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.645	19.624	100.00	100.00	10.1923
Total:			**2.645**	**19.624**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

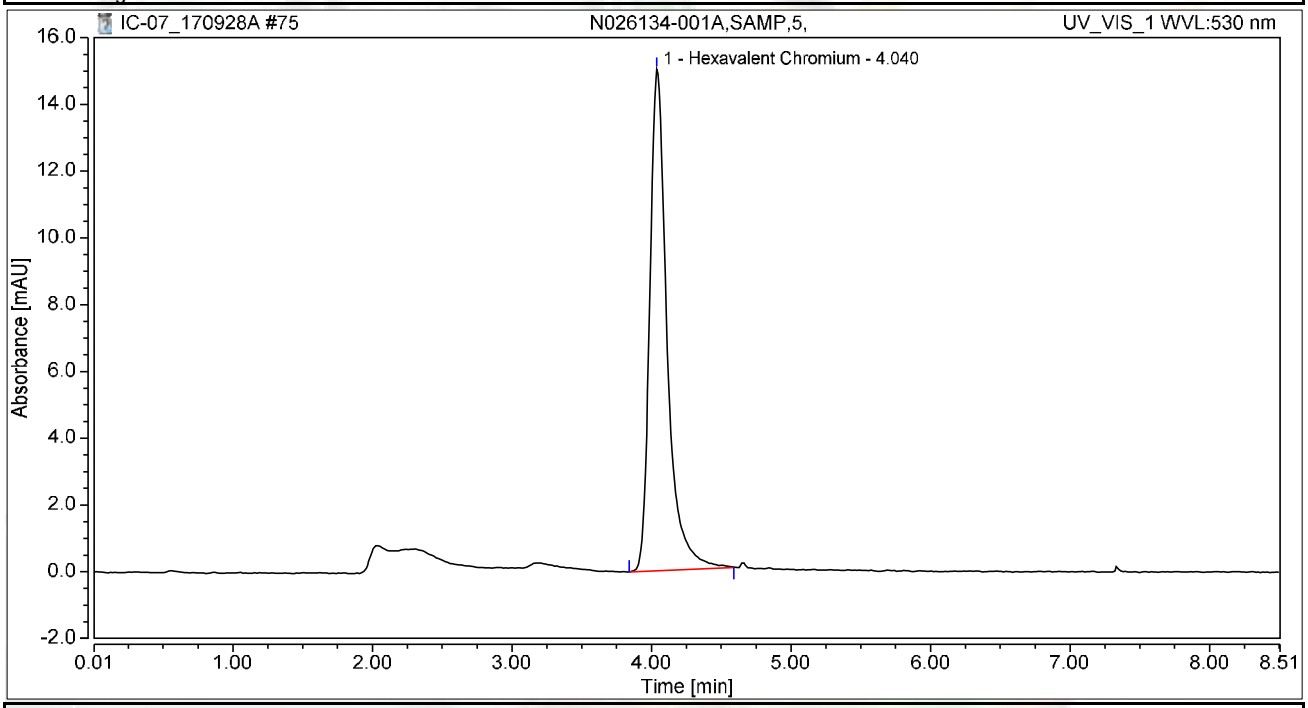
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

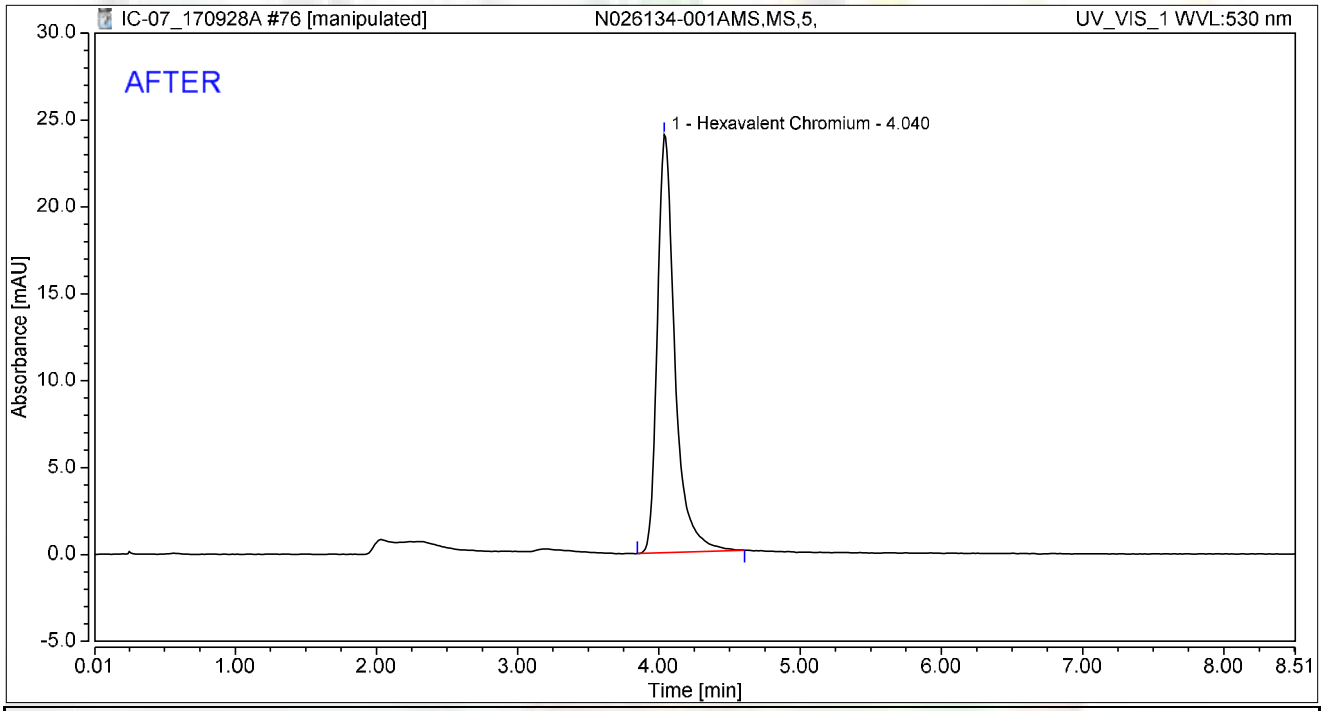
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	2.168	15.027	100.00	100.00	8.3516
Total:			**2.168**	**15.027**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	3.462	24.061	100.00	100.00	13.3369
Total:			**3.462**	**24.061**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: Nancy 10/10/2017

My first report/integration

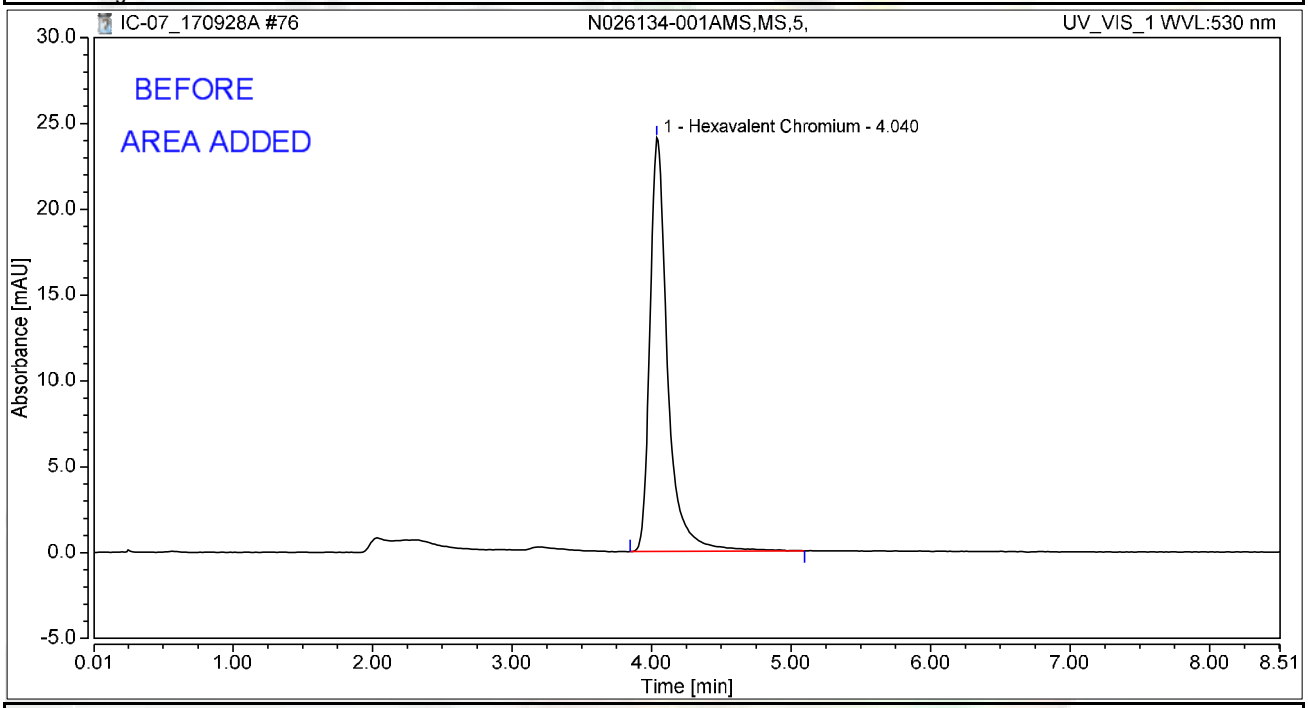
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	3.548	24.097	100.00	100.00	13.6719
Total:			**3.548**	**24.097**	**100.00**	**100.00**	

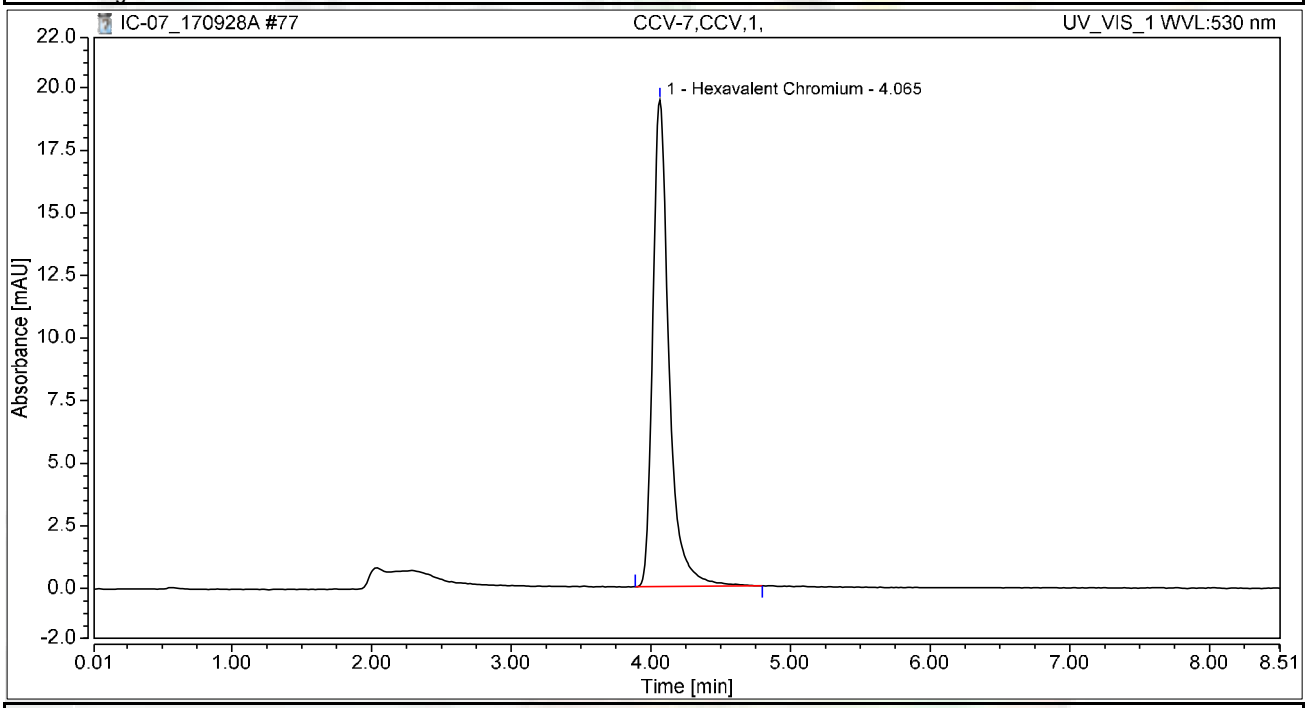
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

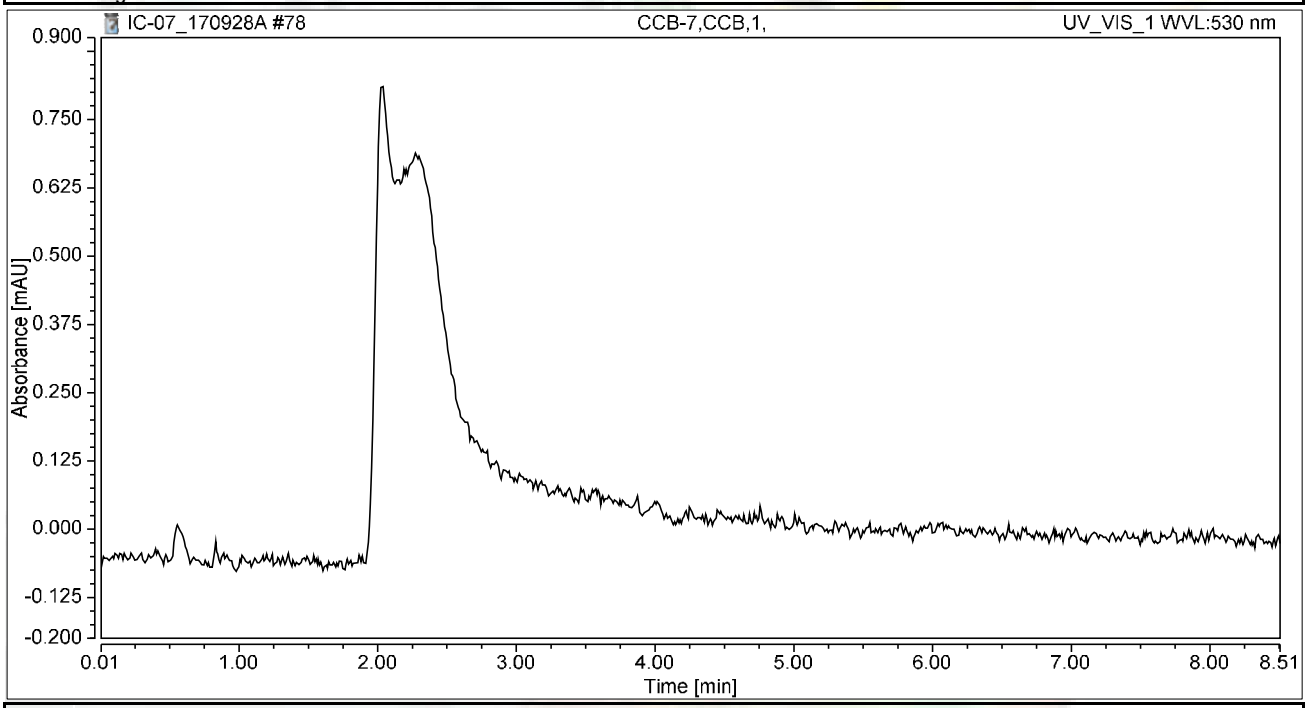
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.620	19.441	100.00	100.00	10.0960
Total:			**2.620**	**19.441**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 08:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118389 **Analyst:** QBM

ASSET #: N026114 **Date Analyzed:** 10/6/2017

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X		X	
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RB 10/09/17 Date:

2nd Level Reviewer 10/12/2017 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N026114-008C** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.8739*20

= 17.478 mg/L

Reporting results in two significant figures:
Nitrate/Nitrite-N, mg/L = 17

RB 10/09/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

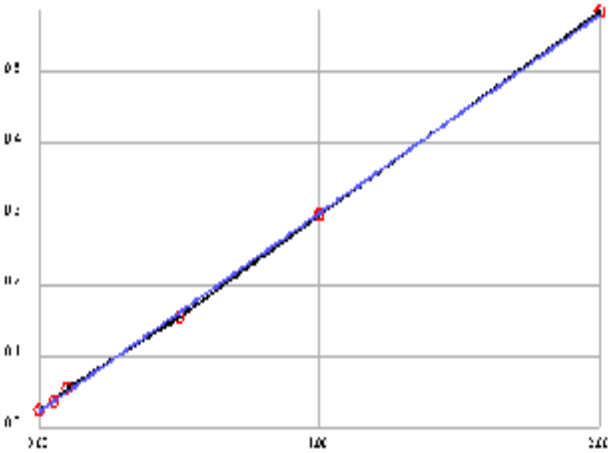
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2795x + 0.023
Correlation	.999811

Calibrant	Energy	Set	Conc
1	0.0252	0.0000	0.0078
2	0.0379	0.0500	0.0533
3	0.0549	0.1000	0.1141
4	0.1564	0.5000	0.4772
5	0.2985	1.0000	0.9855
6	0.5855	2.0000	2.0122

Notes:

2% CuSO4- R171005A
R1 Buffer- R171005B
R2 Coloring reagent- R171005C

STD 1°- ISST160817E
STD 2°- ISST170419E

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ICV**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.469	0.050	0.5000	0	93.7	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCV**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.485	0.050	0.5000	0	96.9	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCV**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.450	0.050	0.5000	0	90.0	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **ICB**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCB**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.023	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118389**
Client ID: **CCB**	Batch ID: **R118389**	TestNo: **SM4500-NO3**		Analysis Date: **10/6/2017**	SeqNo: **2784972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-06-2017 19:23
Time end: 10-06-2017 21:40

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	21:09:38	0.0196		0.0285
2	<BLANK>	21:10:39	0.0121		0.0264
3	<CAL1>	21:11:35	0.0078	[0]	0.0252
4	<CAL2>	21:12:30	0.0533	[0.05]	0.0379
5	<CAL3>	21:13:32	0.1141	[0.1]	0.0549
6	<CAL4>	21:14:27	0.4772	[0.5]	0.1564
7	<CAL5>	21:15:22	0.9855	[1]	0.2985
8	<CAL6>	21:16:18	2.0122	[2]	0.5855
9	,BLANK,BLANK,1,	21:17:20	0.0318		0.0319
10	,ICV,ICV,1,	21:18:16	0.4686		0.1540
11	,ICB,ICB,1,	21:19:10	0.0193		0.0284
12	,MB-H2O,MBLK,1,	21:20:11	0.0143		0.0270
13	,LCS-H2O,LCS,1,	21:21:07	0.4840		0.1583
14	,N026256-001E,SAMP,1,	21:22:08	0.0261		0.0303
15	,N026256-001EDUP,DUP,1,	21:23:02	0.0178		0.0280
16	,N026256-002E,SAMP,5,	21:23:57	0.5899		0.1879
17	,N026256-002EMS,MS,5,	21:24:47	1.0349		0.3123
18	,N026256-002EMSD,MSD,5,	21:25:29	1.0864		0.3267
19	,N026093-001C,SAMP,1,	21:26:19	0.0511		0.0373
20	,N026093-002C,SAMP,10,	21:27:01	0.4342		0.1444
21	,BLANK,	21:27:44	0.0246		0.0299
22	,CCV-1,CCV,1,	21:28:32	0.4847		0.1585
23	,CCB-1,CCB,1,	21:29:15	0.0229		0.0294
24	,N026093-003C,SAMP,10,	21:30:04	0.3802		0.1293
25	,N026114-001C,SAMP,1,	21:30:46	0.0686		0.0422
26	,N026114-002C,SAMP,20,	21:31:30	0.6442		0.2031

10/09/17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N026114-003C,SAMP,10,	21:32:18	0.8574		0.2627
28	,N026114-004C,SAMP,20,	21:33:01	0.8460		0.2595
29	,N026114-005C,SAMP,5,	21:33:43	0.5072		0.1648
30	,N026114-006C,SAMP,5,	21:34:32	0.5859		0.1868
31	,N026114-007C,SAMP,5,	21:35:14	0.5380		0.1734
32	,N026114-008C,SAMP,20,	21:35:58	0.8739		0.2673
33	,BLANK,	21:36:47	0.0243		0.0298
34	,CCV-2,CCV,1,	21:37:29	0.4500		0.1488
35	,CCB-2,CCB,1,	21:38:12	0.0211		0.0289

RB 10/09/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/6/17
Time Analyzed: 7:20 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R171005B
Color reagent: R171005C
2% Copper Sulfate: R171005A
Ammonium Hydroxide: CINV-170919B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N026093-001C		6.65							
N026093-002C		8.06							
N026093-003C		8.04							
N026114-001C		7.27							
N026114-002C		7.84							
N026114-003C		8.55							
N026114-004C		7.08							
N026114-005C		7.63							
N026114-006C		8.85							
N026114-007C		6.75							
N026114-008C		7.68							
N026256-001D		7.28							
N026256-002D		8.70							

Advanced Technology Laboratories, Inc.
Book # 1

RB 10/09/17

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63964
ASSET #: N026114

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/12/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

~~N026114-002B (1st run) = 150 ug/L :confirmation: ug/L ; N026114-002A (218.6) = 120 ug/L :confirmation: ug/L~~

RSD of Se is > 15% on LLICV however, recovery is within criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 10/13/17

2nd Level Reviewer 10/13/2017 Date: ——

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N026114-002B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 153.5 * 1 * (25/25)

Chromium , ug/L = 153.5

Reporting results in two significant figures,

Chromium , ug/L = 150

% RSD SUMMARY

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	15.94	15	<PQL	0.11	9.61	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	5.96	15	PASS	0.52	6.36	15	PASS
Std3-5/50 ppb	ICAL	1	5.046	0.36	15	PASS	5.043	1.2	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	1.11	15	PASS	10.08	0.43	15	PASS
Std5-20/200 ppb	ICAL	1	20.28	2.15	15	PASS	20.4	0.91	15	PASS
Std6-40/400 ppb	ICAL	1	40.013	0.76	15	PASS	40.59	1.081	15	PASS
Std7-100/1000 ppb	ICAL	1	99.94	0.81	15	PASS	100.59	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	224.3	0.33	15	PASS	199.54	1.073	15	PASS
ICV	ICV	1	10.91	0.29	15	PASS	109.37	1.54	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.12	1.83	20	PASS	0.55	4.94	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.81	5.4	15	PASS	17.75	6.71	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-63964	LCS	1	11.056	0.32	15	PASS	110.22	0.67	15	PASS
N026093-001B	SAMP	1	<0.000	N/A	15	<PQL	914.92	0.54	15	PASS
N026093-001B	SAMP	5	<0.000	N/A	15	<PQL	185.83	1.39	15	PASS
N026093-001B-PS	PS	1	8.67	0.38	15	PASS	988.69	0.11	15	PASS
N026093-001B-MS	MS	1	8.79	1.087	15	PASS	986.95	0.57	15	PASS
N026093-001B-MSD	MSD	1	8.77	2.58	15	PASS	980.44	1.68	15	PASS
N026093-002B	SAMP	1	508.84	1.041	15	PASS	2.75	2.76	15	PASS
N026093-003B	SAMP	1	491.53	0.52	15	PASS	2.98	1.54	15	PASS
N026093-001B	SAMP	10	<0.000	N/A	15	<PQL	95.47	0.96	15	PASS
CCV1	CCV	1	20.27	1.19	15	PASS	20.39	2.056	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	<0.000	N/A	15	<PQL	19.97	1.89	15	PASS
N026093-001B-PS	PS	10	1.051	2.32	15	PASS	108.25	2.17	15	PASS
N026093-001B-MS	MS	10	1.04	3.26	15	PASS	107.86	0.43	15	PASS
N026093-001B-MSD	MSD	10	1.039	1.47	15	PASS	105.88	0.38	15	PASS
N026093-002B	SAMP	5	104.025	0.73	15	PASS	0.69	1.73	15	PASS
N026093-003B	SAMP	5	100.69	0.71	15	PASS	0.79	6.7	15	PASS
N026114-001B	SAMP	1	<0.000	N/A	15	<PQL	14.31	1.41	15	PASS
N026114-001B	SAMP	5	<0.000	N/A	15	<PQL	3.37	1.74	15	PASS
N026114-002B	SAMP	1	153.5	1.047	15	PASS	172.11	0.49	15	PASS
N026114-002B	SAMP	5	31.17	0.97	15	PASS	40.15	1.038	15	PASS
CCV2	CCV	1	20.5	1.4	15	PASS	20.25	1.0028	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026114-003B	SAMP	1	517.17	1.11	15	PASS	8.47	1.86	15	PASS
N026114-003B	SAMP	5	104.94	1.056	15	PASS	1.98	0.75	15	PASS
N026114-004B	SAMP	1	374.69	0.81	15	PASS	6.17	1.54	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	71.25	0.36	15	PASS	1.43	2.99	15	PASS
N026114-005B	SAMP	1	4.21	0.84	15	PASS	101.3	2.006	15	PASS
N026114-006B	SAMP	1	3.64	1.12	15	PASS	100.43	0.53	15	PASS
N026114-007B	SAMP	1	3.52	1.7	15	PASS	98.79	1.91	15	PASS
N026114-008B	SAMP	1	20823.022	0.37	15	PASS	2.5	5.11	15	PASS
N026114-008B	SAMP	250	95.45	0.87	15	PASS	0.0035	97.96	15	<PQL
N026134-001B	SAMP	1	39.38	0.6	15	PASS	336.59	1.58	15	PASS
CCV3	CCV	1	20.5	1.05	15	PASS	20.16	0.87	15	PASS
CCB3	CCB	1	0.11	3.0027	15	PASS	<0.000	N/A	15	<PQL
N026134-001B	SAMP	5	9.17	2.24	15	PASS	68.077	2.087	15	PASS
N026134-002B	SAMP	1	0.11	24.78	15	<PQL	112.74	0.65	15	PASS
N026134-002B	SAMP	5	0.058	25.33	15	<PQL	25.75	3.73	15	PASS
N026134-003B	SAMP	1	40.74	4.24	15	PASS	33.71	1.11	15	PASS
N026134-003B	SAMP	5	10.12	2.47	15	PASS	7.84	4.14	15	PASS
N026134-004B	SAMP	1	3.57	3.18	15	PASS	8.78	1.2	15	PASS
N026134-004B	SAMP	5	0.85	2.67	15	PASS	2.092	0.35	15	PASS
N026156-001B	SAMP	1	3.3	1.7	15	PASS	1.75	4.73	15	PASS
N026156-001B	SAMP	5	0.75	2.7	15	PASS	0.43	7.77	15	PASS
N026156-002B	SAMP	1	98.93	1.42	15	PASS	57.33	0.72	15	PASS
CCV4	CCV	1	20.38	2.64	15	PASS	19.85	1.64	15	PASS
CCB4	CCB	1	0.018	97.58	15	<PQL	<0.000	N/A	15	<PQL
N026156-002B	SAMP	5	23.85	1.52	15	PASS	13.77	3	15	PASS
N026156-003B	SAMP	1	97.29	0.74	15	PASS	60.006	1	15	PASS
N026156-003B	SAMP	5	22.73	3.0099	15	PASS	13.83	2.059	15	PASS
N026114-007B	SAMP	1	3.57	1.84	15	PASS	98.11	0.56	15	PASS
N026156-001B	SAMP	1	3.27	1.94	15	PASS	1.67	2.4	15	PASS
CCV5	CCV	1	20.58	0.89	15	PASS	20.34	1.084	15	PASS
CCB5	CCB	1	0.0042	116.44	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	1.06	1.22	20	PASS	0.57	2.48	20	PASS
ICSA2	ICSA	1	0.026	87.44	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.32	0.96	15	PASS	17.2	0.76	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.095	11.3	15	PASS	0.12	26.84	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	7.62	15	PASS	0.46	10.85	15	PASS
Std3-5/50 ppb	ICAL	1	4.95	1.093	15	PASS	4.79	6.98	15	PASS
Std4-10/100 ppb	ICAL	1	10.021	2.22	15	PASS	9.91	7.64	15	PASS
Std5-20/200 ppb	ICAL	1	19.72	0.78	15	PASS	19.95	6.29	15	PASS
Std6-40/400 ppb	ICAL	1	39.68	0.87	15	PASS	38.85	2.077	15	PASS
Std7-100/1000 ppb	ICAL	1	100.12	0.59	15	PASS	98.98	2.36	15	PASS
Std8-200/2000 ppb	ICAL	1	200.03	1.14	15	PASS	200.76	0.45	15	PASS
ICV	ICV	1	10.92	0.31	15	PASS	10.77	2.14	15	PASS
ICB	ICB	1	0.0078	127.53	15	<PQL	0.03	163.71	15	<PQL
LLICV	CCV1	1	0.12	15.92	20	PASS	0.56	20.35	20	Failed NR!
ICSA1	ICSA	1	0.042	17.27	15	<PQL	0.072	65.049	15	<PQL
ICSAB1	ICSAB	1	20.67	3.63	15	PASS	21.14	1.94	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	0.017	66.91	15	<PQL
LCS-63964	LCS	1	10.95	0.75	15	PASS	10.4	4.19	15	PASS
N026093-001B	SAMP	1	4.21	2.23	15	PASS	0.096	41.48	15	<PQL
N026093-001B	SAMP	5	0.88	0.3	15	PASS	0.034	18.27	15	<PQL
N026093-001B-PS	PS	1	13.57	2.43	15	PASS	9.62	2.22	15	PASS
N026093-001B-MS	MS	1	14.095	1.69	15	PASS	9.15	8.12	15	PASS
N026093-001B-MSD	MSD	1	13.86	0.7	15	PASS	9.68	4.92	15	PASS
N026093-002B	SAMP	1	1.58	1.22	15	PASS	3.37	2.51	15	PASS
N026093-003B	SAMP	1	1.55	2.85	15	PASS	3.58	7.95	15	PASS
N026093-001B	SAMP	10	0.47	1.77	15	PASS	0.025	116.0007	15	<PQL
CCV1	CCV	1	19.94	0.91	15	PASS	19.83	0.77	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	0.091	7.8	15	PASS	0.014	158.36	15	<PQL
N026093-001B-PS	PS	10	1.62	0.22	15	PASS	1.18	19.95	15	NR!
N026093-001B-MS	MS	10	1.6	0.37	15	PASS	1.17	6.67	15	PASS
N026093-001B-MSD	MSD	10	1.59	2.73	15	PASS	1.15	12.088	15	PASS
N026093-002B	SAMP	5	0.34	12.23	15	PASS	0.73	10.47	15	PASS
N026093-003B	SAMP	5	0.31	8.15	15	PASS	0.82	24.36	15	NR!
N026114-001B	SAMP	1	5.26	4.64	15	PASS	3.49	0.58	15	PASS
N026114-001B	SAMP	5	1.17	1.54	15	PASS	0.68	12.25	15	PASS
N026114-002B	SAMP	1	0.43	9.57	15	PASS	8.99	2.48	15	PASS
N026114-002B	SAMP	5	0.088	11.57	15	PASS	1.87	6.37	15	PASS
CCV2	CCV	1	20.024	0.67	15	PASS	20.27	3.32	15	PASS
CCB2	CCB	1	0.00091	603.1	15	<PQL	0.0072	399.17	15	<PQL
N026114-003B	SAMP	1	1.94	6.17	15	PASS	6.53	6.26	15	PASS
N026114-003B	SAMP	5	0.4	3.91	15	PASS	1.41	5.69	15	PASS
N026114-004B	SAMP	1	2.23	3.59	15	PASS	10.91	2.28	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	0.46	1.93	15	PASS	2.21	3.79	15	PASS
N026114-005B	SAMP	1	7.72	1.67	15	PASS	1.24	9.88	15	PASS
N026114-006B	SAMP	1	7.73	1.96	15	PASS	1.27	4.52	15	PASS
N026114-007B	SAMP	1	7.37	4.01	15	PASS	1.3	15.63	15	NR!
N026114-008B	SAMP	1	2.72	1.6	15	PASS	14.0075	2.67	15	PASS
N026114-008B	SAMP	250	<0.000	N/A	15	<PQL	0.056	59.39	15	<PQL
N026134-001B	SAMP	1	1.58	7.19	15	PASS	1.81	11.15	15	PASS
CCV3	CCV	1	19.79	0.79	15	PASS	20.78	2.14	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.018	141.96	15	<PQL
N026134-001B	SAMP	5	0.33	2.3	15	PASS	0.4	33.24	15	<PQL
N026134-002B	SAMP	1	4.28	1.37	15	PASS	0.13	33.73	15	<PQL
N026134-002B	SAMP	5	0.97	9.78	15	PASS	0.011	178.89	15	<PQL
N026134-003B	SAMP	1	1.33	4.88	15	PASS	3.58	11.5	15	PASS
N026134-003B	SAMP	5	0.29	8.66	15	PASS	0.86	10.026	15	PASS
N026134-004B	SAMP	1	14.75	2.86	15	PASS	0.27	12.9	15	PASS
N026134-004B	SAMP	5	3.28	2.18	15	PASS	0.04	78.66	15	<PQL
N026156-001B	SAMP	1	1.43	8.099	15	PASS	0.97	33.57	15	NR!
N026156-001B	SAMP	5	0.29	6.68	15	PASS	0.13	19.41	15	<PQL
N026156-002B	SAMP	1	10.82	1.22	15	PASS	1.18	6.99	15	PASS
CCV4	CCV	1	19.9	0.57	15	PASS	22.088	3.43	15	PASS
CCB4	CCB	1	0.001	272.48	15	<PQL	0.000028	48404.27	15	<PQL
N026156-002B	SAMP	5	2.4	0.92	15	PASS	0.25	3.67	15	PASS
N026156-003B	SAMP	1	10.57	1.38	15	PASS	1.046	15.07	15	NR!
N026156-003B	SAMP	5	2.42	4.4	15	PASS	0.25	15.9	15	<PQL
N026114-007B	SAMP	1	7.46	3.23	15	PASS	1.25	8.96	15	PASS
N026156-001B	SAMP	1	1.36	3.84	15	PASS	0.97	9.31	15	PASS
CCV5	CCV	1	19.79	0.86	15	PASS	19.63	5.91	15	PASS
CCB5	CCB	1	0.0056	82.96	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.11	15.33	20	PASS	0.46	19.93	20	PASS
ICSA2	ICSA	1	0.031	22.63	15	<PQL	0.076	67.48	15	<PQL
ICSAB2	ICSAB	1	20.42	2.082	15	PASS	19.097	1.015	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.089	4.4	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	1.5	15	PASS
Std3-5/50 ppb	ICAL	1	4.88	0.72	15	PASS
Std4-10/100 ppb	ICAL	1	9.79	0.52	15	PASS
Std5-20/200 ppb	ICAL	1	19.65	0.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.34	1.0084	15	PASS
Std7-100/1000 ppb	ICAL	1	99.21	0.52	15	PASS
Std8-200/2000 ppb	ICAL	1	200.57	0.14	15	PASS
ICV	ICV	1	10.92	1.33	15	PASS
ICB	ICB	1	0.058	18.18	15	<PQL
LLICV	CCV1	1	0.48	4.21	20	PASS
ICSA1	ICSA	1	0.14	7.34	15	PASS
ICSAB1	ICSAB	1	22.3	2.86	15	PASS
MB-63964	MBLK	1	0.028	15.33	15	<PQL
LCS-63964	LCS	1	10.76	0.84	15	PASS
N026093-001B	SAMP	1	61.88	1.86	15	PASS
N026093-001B	SAMP	5	12.9	0.79	15	PASS
N026093-001B-PS	PS	1	71.75	0.029	15	PASS
N026093-001B-MS	MS	1	71.71	1.25	15	PASS
N026093-001B-MSD	MSD	1	71.22	1.035	15	PASS
N026093-002B	SAMP	1	13.74	1.56	15	PASS
N026093-003B	SAMP	1	13.92	1.32	15	PASS
N026093-001B	SAMP	10	6.5	2.72	15	PASS
CCV1	CCV	1	19.62	0.9	15	PASS
CCB1	CCB	1	0.019	25.51	15	<PQL
N026093-001B	SAMP	50	1.27	2.53	15	PASS
N026093-001B-PS	PS	10	7.66	0.98	15	PASS
N026093-001B-MS	MS	10	7.54	0.81	15	PASS
N026093-001B-MSD	MSD	10	7.53	0.83	15	PASS
N026093-002B	SAMP	5	2.87	2.99	15	PASS
N026093-003B	SAMP	5	2.89	1.068	15	PASS
N026114-001B	SAMP	1	52.91	0.41	15	PASS
N026114-001B	SAMP	5	11.2	0.65	15	PASS
N026114-002B	SAMP	1	31.33	0.56	15	PASS
N026114-002B	SAMP	5	6.58	0.75	15	PASS
CCV2	CCV	1	19.37	0.77	15	PASS
CCB2	CCB	1	0.024	11.61	15	PASS
N026114-003B	SAMP	1	27.42	1.49	15	PASS
N026114-003B	SAMP	5	5.86	1.54	15	PASS
N026114-004B	SAMP	1	81.1	0.84	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	16.5	0.99	15	PASS
N026114-005B	SAMP	1	37.79	0.6	15	PASS
N026114-006B	SAMP	1	37.36	0.55	15	PASS
N026114-007B	SAMP	1	36.23	1.51	15	PASS
N026114-008B	SAMP	1	36.24	0.59	15	PASS
N026114-008B	SAMP	250	0.17	2.11	15	PASS
N026134-001B	SAMP	1	21.3	1.78	15	PASS
CCV3	CCV	1	19.36	1.64	15	PASS
CCB3	CCB	1	0.023	30.24	15	<PQL
N026134-001B	SAMP	5	4.62	2.81	15	PASS
N026134-002B	SAMP	1	40.27	1.24	15	PASS
N026134-002B	SAMP	5	8.3	3.21	15	PASS
N026134-003B	SAMP	1	30.15	2.89	15	PASS
N026134-003B	SAMP	5	6.28	3.13	15	PASS
N026134-004B	SAMP	1	73.46	1.73	15	PASS
N026134-004B	SAMP	5	15.5	2.31	15	PASS
N026156-001B	SAMP	1	15.8	0.59	15	PASS
N026156-001B	SAMP	5	3.42	0.91	15	PASS
N026156-002B	SAMP	1	72.81	0.29	15	PASS
CCV4	CCV	1	18.79	1.57	15	PASS
CCB4	CCB	1	0.03	22.21	15	<PQL
N026156-002B	SAMP	5	15.5	0.5	15	PASS
N026156-003B	SAMP	1	71.56	1.38	15	PASS
N026156-003B	SAMP	5	14.9	0.62	15	PASS
N026114-007B	SAMP	1	35.7	0.63	15	PASS
N026156-001B	SAMP	1	15.81	0.65	15	PASS
CCV5	CCV	1	19.21	0.46	15	PASS
CCB5	CCB	1	0.024	12.13	15	PASS
LLCCV1	CCV2	1	0.5	1.64	20	PASS
ICSA2	ICSA	1	0.11	4.88	15	PASS
ICSAB2	ICSAB	1	21.35	0.56	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012001.D	RINSE	RINSE	1	10/12/17 5:01 AM
A1012002.D	Cal Blank	IBLK	1	10/12/17 5:06 AM
A1012003.D	Std1-0.1/1 ppb	ICAL	1	10/12/17 5:12 AM
A1012004.D	Std2-0.5/5 ppb	ICAL	1	10/12/17 5:18 AM
A1012005.D	Std3-5/50 ppb	ICAL	1	10/12/17 5:23 AM
A1012006.D	Std4-10/100 ppb	ICAL	1	10/12/17 5:29 AM
A1012007.D	Std5-20/200 ppb	ICAL	1	10/12/17 5:34 AM
A1012008.D	Std6-40/400 ppb	ICAL	1	10/12/17 5:40 AM
A1012009.D	Std7-100/1000 ppb	ICAL	1	10/12/17 5:45 AM
A1012010.D	Std8-200/2000 ppb	ICAL	1	10/12/17 5:51 AM
A1012011.D	ICV	ICV	1	10/12/17 5:56 AM
A1012012.D	ICB	ICB	1	10/12/17 6:02 AM
A1012013.D	LLICV	CCV1	1	10/12/17 6:07 AM
A1012014.D	ICSA1	ICSA	1	10/12/17 6:13 AM
A1012015.D	ICSAB1	ICSAB	1	10/12/17 6:18 AM
A1012016.D	MB-63964	MBLK	1	10/12/17 6:24 AM
A1012017.D	LCS-63964	LCS	1	10/12/17 6:29 AM
A1012018.D	N026093-001B	SAMP	1	10/12/17 6:35 AM
A1012019.D	N026093-001B	SAMP	5	10/12/17 6:41 AM
A1012020.D	N026093-001B-PS	PS	1	10/12/17 6:46 AM
A1012021.D	N026093-001B-MS	MS	1	10/12/17 6:52 AM
A1012022.D	N026093-001B-MSD	MSD	1	10/12/17 6:57 AM
A1012023.D	N026093-002B	SAMP	1	10/12/17 7:03 AM
A1012024.D	N026093-003B	SAMP	1	10/12/17 7:08 AM
A1012025.D	N026093-001B	SAMP	10	10/12/17 7:14 AM
A1012026.D	CCV1	CCV	1	10/12/17 7:19 AM
A1012027.D	CCB1	CCB	1	10/12/17 7:25 AM
A1012028.D	N026093-001B	SAMP	50	10/12/17 7:30 AM
A1012029.D	N026093-001B-PS	PS	10	10/12/17 7:36 AM
A1012030.D	N026093-001B-MS	MS	10	10/12/17 7:41 AM
A1012031.D	N026093-001B-MSD	MSD	10	10/12/17 7:47 AM
A1012032.D	N026093-002B	SAMP	5	10/12/17 7:52 AM
A1012033.D	N026093-003B	SAMP	5	10/12/17 7:58 AM
A1012034.D	N026114-001B	SAMP	1	10/12/17 8:03 AM
A1012035.D	N026114-001B	SAMP	5	10/12/17 8:09 AM
A1012036.D	N026114-002B	SAMP	1	10/12/17 8:15 AM
A1012037.D	N026114-002B	SAMP	5	10/12/17 8:20 AM
A1012038.D	CCV2	CCV	1	10/12/17 8:26 AM
A1012039.D	CCB2	CCB	1	10/12/17 8:32 AM
A1012040.D	N026114-003B	SAMP	1	10/12/17 8:37 AM
A1012041.D	N026114-003B	SAMP	5	10/12/17 8:43 AM
A1012042.D	N026114-004B	SAMP	1	10/12/17 8:48 AM

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012043.D	N026114-004B	SAMP	5	10/12/17 8:54 AM
A1012044.D	N026114-005B	SAMP	1	10/12/17 8:59 AM
A1012045.D	N026114-006B	SAMP	1	10/12/17 9:05 AM
A1012046.D	N026114-007B	SAMP	1	10/12/17 9:10 AM
A1012047.D	N026114-008B	SAMP	1	10/12/17 9:16 AM
A1012048.D	N026114-008B	SAMP	250	10/12/17 9:21 AM
A1012049.D	N026134-001B	SAMP	1	10/12/17 9:27 AM
A1012050.D	CCV3	CCV	1	10/12/17 9:32 AM
A1012051.D	CCB3	CCB	1	10/12/17 9:38 AM
A1012052.D	N026134-001B	SAMP	5	10/12/17 9:43 AM
A1012053.D	N026134-002B	SAMP	1	10/12/17 9:49 AM
A1012054.D	N026134-002B	SAMP	5	10/12/17 9:55 AM
A1012055.D	N026134-003B	SAMP	1	10/12/17 10:00 AM
A1012056.D	N026134-003B	SAMP	5	10/12/17 10:06 AM
A1012057.D	N026134-004B	SAMP	1	10/12/17 10:11 AM
A1012058.D	N026134-004B	SAMP	5	10/12/17 10:17 AM
A1012059.D	N026156-001B	SAMP	1	10/12/17 10:22 AM
A1012060.D	N026156-001B	SAMP	5	10/12/17 10:28 AM
A1012061.D	N026156-002B	SAMP	1	10/12/17 10:33 AM
A1012062.D	CCV4	CCV	1	10/12/17 10:39 AM
A1012063.D	CCB4	CCB	1	10/12/17 10:44 AM
A1012064.D	N026156-002B	SAMP	5	10/12/17 10:50 AM
A1012065.D	N026156-003B	SAMP	1	10/12/17 10:55 AM
A1012066.D	N026156-003B	SAMP	5	10/12/17 11:01 AM
A1012067.D	N026114-007B	SAMP	1	10/12/17 11:07 AM
A1012068.D	N026156-001B	SAMP	1	10/12/17 11:12 AM
A1012069.D	CCV5	CCV	1	10/12/17 11:18 AM
A1012070.D	CCB5	CCB	1	10/12/17 11:23 AM
A1012071.D	LLCCV1	CCV2	1	10/12/17 11:29 AM
A1012072.D	ICSA2	ICSA	1	10/12/17 11:35 AM
A1012073.D	ICSAB2	ICSAB	1	10/12/17 11:40 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**

Reviewed/ Date: 10/13/2017

Initials/ Date: CEI 10/13/17

Prep Batch **63964** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63964	Aqueous		25	☐	0	0	25	1.000		
MB-63964	Aqueous		25	☐	0	0	25	1.000		
N026093-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-007B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**
Reviewed/ Date: 10/13/2017
Initials/ Date: CEI 10/13/17
Prep Batch **63964** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N026114-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-003B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2017 02:47:04 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	165511.00	0.00	
24 Mg	499304.00	0.00	
25 Mg	65337.40	0.00	
26 Mg	75826.70	0.00	
59 Co	653726.00	0.00	
115 In	999173.00	0.00	
206 Pb	295094.00	0.00	
207 Pb	259020.00	0.00	
208 Pb	634328.00	0.00	

RSD (%)

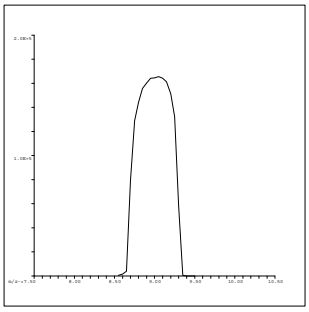
Element	Actual	Required	Flag
9 Be	1.01	5.00	
24 Mg	0.65	5.00	
25 Mg	2.02	5.00	
26 Mg	1.03	5.00	
59 Co	0.71	5.00	
115 In	0.59	5.00	
206 Pb	0.73	5.00	
207 Pb	1.06	5.00	
208 Pb	0.61	5.00	

Ion Ratio

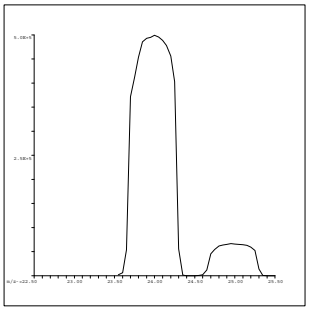
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

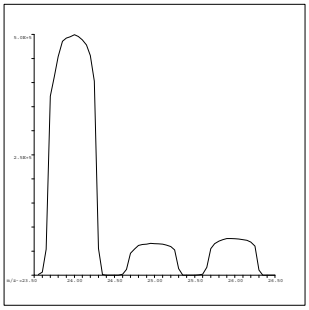
Element	Actual	Required	Flag



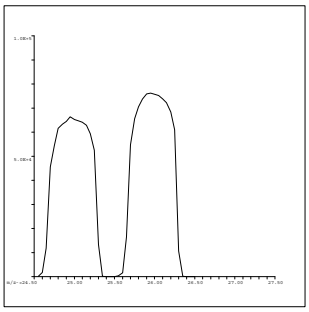
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



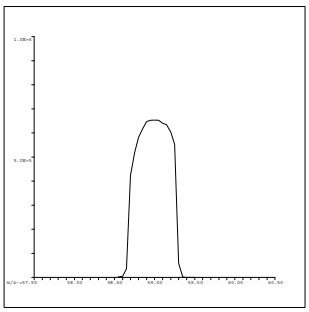
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



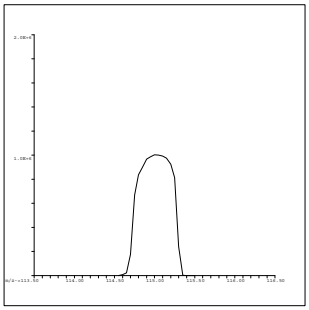
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



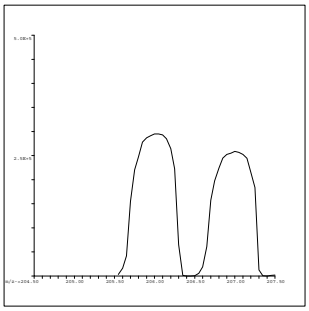
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



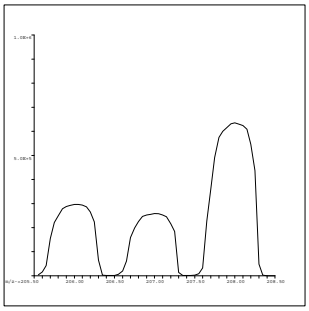
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



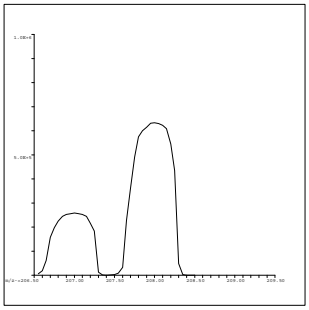
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 171012A

Instrument ID: ICPMS-02

Analyte	Data File	A1012002.D	A1012003.D	A1012004.D	A1012005.D	A1012006.D	A1012007.D	A1012008.D	A1012009.D	A1012010.D	
	Acq. Date-Time	10/12/2017 05:06 AM	10/12/2017 05:12 AM	10/12/2017 05:18 AM	10/12/2017 05:23 AM	10/12/2017 05:29 AM	10/12/2017 05:34 AM	10/12/2017 05:40 AM	10/12/2017 05:45 AM	10/12/2017 05:51 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	108669.5		119532.6	119350.5	119064.2	116748.3	117079.1	114999.5	114629.2	
55 Mn [2]	CPS	146		2606.6	23833.4	47355.5	93813.5	187032.6	454984	899628.9	1.0000
52 Cr [2]	CPS	845.4		5148.5	45335.4	88579.8	175407.8	346343	848306.7	1896775.6	1.0000
72 Ge (ISTD) [1]	CPS	97228.3		98659.8	98939.5	97209.3	94628.7	96625.8	93800.7	91903	
78 Se [1]	CPS	6.7		166.7	1686.8	3427.2	6700.6	13323.8	32941	65460.7	1.0000
72 Ge (ISTD) [2]	CPS	75383.9	83851.2	84051.4	83514.8	82923.2	82408.5	82254.5	79419.3	79391.6	
75 As [2]	CPS	27.1	124	496	4919	9849.3	19231	38602.5	93998.9	187681.1	1.0000
103 Rh (ISTD) [2]	CPS	2243050.3		2483146.6	2511454.4	2474294.3	2454264.4	2482662.3	2384160	2381162.9	
95 Mo [2]	CPS	46.7		2621.4	27234.1	53833.5	107080.9	216771.2	525013.3	1060017.1	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.925	0.10	10.00	0	109	90	110				
Manganese	109.366	0.50	100.0	0	109	90	110				
Molybdenum	10.916	0.50	10.00	0	109	90	110				
Selenium	10.769	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.117	0.10	0.1000	0	117	80	120				
Manganese	0.554	0.50	0.5000	0	111	80	120				
Molybdenum	0.483	0.50	0.5000	0	96.6	80	120				
Selenium	0.556	0.50	0.5000	0	111	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.944	0.10	20.00	0	99.7	90	110				
Manganese	20.386	0.50	20.00	0	102	90	110				
Molybdenum	19.622	0.50	20.00	0	98.1	90	110				
Selenium	19.826	0.50	20.00	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.024	0.10	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.246	0.50	20.00	0	101	90	110				
Molybdenum	19.365	0.50	20.00	0	96.8	90	110				
Selenium	20.266	0.50	20.00	0	101	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.793	0.10	20.00	0	99.0	90	110				
Manganese	20.157	0.50	20.00	0	101	90	110				
Molybdenum	19.357	0.50	20.00	0	96.8	90	110				
Selenium	20.781	0.50	20.00	0	104	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.901	0.10	20.00	0	99.5	90	110				
Manganese	19.855	0.50	20.00	0	99.3	90	110				
Molybdenum	18.795	0.50	20.00	0	94.0	90	110				
Selenium	22.088	0.50	20.00	0	110	90	110				S

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.787	0.10	20.00	0	98.9	90	110				
Manganese	20.336	0.50	20.00	0	102	90	110				
Molybdenum	19.210	0.50	20.00	0	96.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Se on CCV4 is within +/- 10% of criteria.

10/13/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.627	0.50	20.00	0	98.1	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.110	0.10	0.1000	0	110	70	130				
Manganese	0.572	0.50	0.5000	0	114	70	130				
Molybdenum	0.503	0.50	0.5000	0	101	70	130				
Selenium	0.461	0.50	0.5000	0	92.3	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.906	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.125	1.0	1.000	0	112	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.275	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.504	1.0	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.500	1.0	20.00	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.376	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.579	1.0	20.00	0	103	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.060	1.0	1.000	0	106	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.058	0.50									
Selenium	0.030	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.111	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.042	0.10									
Manganese	ND	0.50									
Molybdenum	0.142	0.50									
Selenium	0.072	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.672	0.10	20.00	0	103	80	120				
Manganese	17.745	0.50	20.00	0	88.7	80	120				
Molybdenum	22.300	0.50	20.00	0	111	80	120				
Selenium	21.138	0.50	20.00	0	106	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.031	0.10									
Manganese	ND	0.50									
Molybdenum	0.113	0.50									
Selenium	0.076	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.424	0.10	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.202	0.50	20.00	0	86.0	80	120				
Molybdenum	21.354	0.50	20.00	0	107	80	120				
Selenium	19.097	0.50	20.00	0	95.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.814	1.0	20.00	0	99.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.026	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.315	1.0	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	108669.5	108669.5	100	PASS	70-125	75383.9	75383.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	119552.6	108669.5	110.02	PASS	70-125	83851.2	75383.9	111.23	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119532.6	108669.5	110	PASS	70-125	84051.4	75383.9	111.5	PASS	70-125
Std3-5/50 ppb	ICAL	1	119350.5	108669.5	109.83	PASS	70-125	83514.8	75383.9	110.79	PASS	70-125
Std4-10/100 ppb	ICAL	1	119064.2	108669.5	109.57	PASS	70-125	82923.2	75383.9	110	PASS	70-125
Std5-20/200 ppb	ICAL	1	116748.3	108669.5	107.43	PASS	70-125	82408.5	75383.9	109.32	PASS	70-125
Std6-40/400 ppb	ICAL	1	117079.1	108669.5	107.74	PASS	70-125	82254.5	75383.9	109.11	PASS	70-125
Std7-100/1000 ppb	ICAL	1	114999.5	108669.5	105.83	PASS	70-125	79419.3	75383.9	105.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	114629.2	108669.5	105.48	PASS	70-125	79391.6	75383.9	105.32	PASS	70-125
ICV	ICV	1	103654.5	108669.5	95.39	PASS	70-125	74276.2	75383.9	98.53	PASS	70-125
ICB	ICB	1	106373.2	108669.5	97.89	PASS	70-125	76222.1	75383.9	101.11	PASS	70-125
LLICV	CCV1	1	107263.2	108669.5	98.71	PASS	70-125	78829.9	75383.9	104.57	PASS	70-125
ICSA1	ICSA	1	119463.8	108669.5	109.93	PASS	70-125	83102.1	75383.9	110.24	PASS	70-125
ICSAB1	ICSAB	1	110208.5	108669.5	101.42	PASS	70-125	74165.3	75383.9	98.38	PASS	70-125
MB-63964	MBLK	1	116354.9	108669.5	107.07	PASS	70-125	81787.8	75383.9	108.5	PASS	70-125
LCS-63964	LCS	1	105476.7	108669.5	97.062	PASS	70-125	75647	75383.9	100.35	PASS	70-125
N026093-001B	SAMP	1	100828.7	108669.5	92.78	PASS	70-125	63981.8	75383.9	84.87	PASS	70-125
N026093-001B	SAMP	5	107726.9	108669.5	99.13	PASS	70-125	74579.1	75383.9	98.93	PASS	70-125
N026093-001B-PS	PS	1	107359.7	108669.5	98.79	PASS	70-125	68070.5	75383.9	90.3	PASS	70-125
N026093-001B-MS	MS	1	107438.7	108669.5	98.87	PASS	70-125	67550.7	75383.9	89.61	PASS	70-125
N026093-001B-MSD	MSD	1	105473.6	108669.5	97.059	PASS	70-125	66107.4	75383.9	87.69	PASS	70-125
N026093-002B	SAMP	1	112622.6	108669.5	103.64	PASS	70-125	73821.1	75383.9	97.93	PASS	70-125
N026093-003B	SAMP	1	114742.9	108669.5	105.59	PASS	70-125	74430.9	75383.9	98.74	PASS	70-125
N026093-001B	SAMP	10	109413.5	108669.5	100.68	PASS	70-125	75655.2	75383.9	100.36	PASS	70-125
CCV1	CCV	1	122438.7	108669.5	112.67	PASS	70-125	85406.1	75383.9	113.29	PASS	70-125
CCB1	CCB	1	113523.3	108669.5	104.47	PASS	70-125	78979.9	75383.9	104.77	PASS	70-125
N026093-001B	SAMP	50	107327.3	108669.5	98.76	PASS	70-125	74707.5	75383.9	99.1	PASS	70-125
N026093-001B-PS	PS	10	103502.2	108669.5	95.24	PASS	70-125	72181.9	75383.9	95.75	PASS	70-125
N026093-001B-MS	MS	10	103904.5	108669.5	95.62	PASS	70-125	72219.5	75383.9	95.8	PASS	70-125
N026093-001B-MSD	MSD	10	104678.1	108669.5	96.33	PASS	70-125	72740.9	75383.9	96.49	PASS	70-125
N026093-002B	SAMP	5	104216.7	108669.5	95.9	PASS	70-125	73376.9	75383.9	97.34	PASS	70-125
N026093-003B	SAMP	5	103398.4	108669.5	95.15	PASS	70-125	73736.1	75383.9	97.81	PASS	70-125
N026114-001B	SAMP	1	96550.6	108669.5	88.85	PASS	70-125	61313.9	75383.9	81.34	PASS	70-125
N026114-001B	SAMP	5	105870.5	108669.5	97.42	PASS	70-125	71330	75383.9	94.62	PASS	70-125
N026114-002B	SAMP	1	114657.9	108669.5	105.51	PASS	70-125	77021.2	75383.9	102.17	PASS	70-125
N026114-002B	SAMP	5	107767.6	108669.5	99.17	PASS	70-125	75851.7	75383.9	100.62	PASS	70-125
CCV2	CCV	1	116255.6	108669.5	106.98	PASS	70-125	81002.8	75383.9	107.45	PASS	70-125
CCB2	CCB	1	107541.2	108669.5	98.96	PASS	70-125	76206.4	75383.9	101.09	PASS	70-125
N026114-003B	SAMP	1	101677.9	108669.5	93.57	PASS	70-125	66649.4	75383.9	88.41	PASS	70-125
N026114-003B	SAMP	5	104718.7	108669.5	96.36	PASS	70-125	72688.9	75383.9	96.42	PASS	70-125
N026114-004B	SAMP	1	111340.7	108669.5	102.46	PASS	70-125	76384.9	75383.9	101.33	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	108146.7	108669.5	99.52	PASS	70-125	75407.1	75383.9	100.03	PASS	70-125
N026114-005B	SAMP	1	114328.4	108669.5	105.21	PASS	70-125	78548.7	75383.9	104.2	PASS	70-125
N026114-006B	SAMP	1	111068.7	108669.5	102.21	PASS	70-125	76485.5	75383.9	101.46	PASS	70-125
N026114-007B	SAMP	1	111171.2	108669.5	102.3	PASS	70-125	76291.8	75383.9	101.2	PASS	70-125
N026114-008B	SAMP	1	107032.9	108669.5	98.49	PASS	70-125	72180.6	75383.9	95.75	PASS	70-125
N026114-008B	SAMP	250	105325.5	108669.5	96.92	PASS	70-125	76011.1	75383.9	100.83	PASS	70-125
N026134-001B	SAMP	1	102053	108669.5	93.91	PASS	70-125	67762.7	75383.9	89.89	PASS	70-125
CCV3	CCV	1	114484.2	108669.5	105.35	PASS	70-125	80016.9	75383.9	106.15	PASS	70-125
CCB3	CCB	1	105695.7	108669.5	97.26	PASS	70-125	74672.9	75383.9	99.057	PASS	70-125
N026134-001B	SAMP	5	96036.9	108669.5	88.38	PASS	70-125	68026.3	75383.9	90.24	PASS	70-125
N026134-002B	SAMP	1	96891.7	108669.5	89.16	PASS	70-125	64326.6	75383.9	85.33	PASS	70-125
N026134-002B	SAMP	5	100894.5	108669.5	92.85	PASS	70-125	68618.9	75383.9	91.026	PASS	70-125
N026134-003B	SAMP	1	101029.7	108669.5	92.97	PASS	70-125	62556.5	75383.9	82.98	PASS	70-125
N026134-003B	SAMP	5	97045.9	108669.5	89.3	PASS	70-125	67117.8	75383.9	89.035	PASS	70-125
N026134-004B	SAMP	1	90800.8	108669.5	83.56	PASS	70-125	55923.9	75383.9	74.19	PASS	70-125
N026134-004B	SAMP	5	97931.5	108669.5	90.12	PASS	70-125	68227.2	75383.9	90.51	PASS	70-125
N026156-001B	SAMP	1	104288.3	108669.5	95.97	PASS	70-125	69617.7	75383.9	92.35	PASS	70-125
N026156-001B	SAMP	5	104071	108669.5	95.77	PASS	70-125	73014.1	75383.9	96.86	PASS	70-125
N026156-002B	SAMP	1	93060	108669.5	85.64	PASS	70-125	59239.9	75383.9	78.58	PASS	70-125
CCV4	CCV	1	114261.8	108669.5	105.15	PASS	70-125	80191.4	75383.9	106.38	PASS	70-125
CCB4	CCB	1	106708.3	108669.5	98.2	PASS	70-125	75748.8	75383.9	100.48	PASS	70-125
N026156-002B	SAMP	5	94655.8	108669.5	87.1	PASS	70-125	65986.8	75383.9	87.53	PASS	70-125
N026156-003B	SAMP	1	92374.8	108669.5	85.005	PASS	70-125	59746.2	75383.9	79.26	PASS	70-125
N026156-003B	SAMP	5	97973.4	108669.5	90.16	PASS	70-125	68021.6	75383.9	90.23	PASS	70-125
N026114-007B	SAMP	1	109267.9	108669.5	100.55	PASS	70-125	75495.4	75383.9	100.15	PASS	70-125
N026156-001B	SAMP	1	103436.3	108669.5	95.18	PASS	70-125	69811.4	75383.9	92.61	PASS	70-125
CCV5	CCV	1	114182.1	108669.5	105.07	PASS	70-125	81458.1	75383.9	108.06	PASS	70-125
CCB5	CCB	1	106189	108669.5	97.72	PASS	70-125	76772.2	75383.9	101.84	PASS	70-125
LLCCV1	CCV2	1	118743.3	108669.5	109.27	PASS	70-125	86262.6	75383.9	114.43	PASS	70-125
ICSA2	ICSA	1	97881.4	108669.5	90.073	PASS	70-125	70191.9	75383.9	93.11	PASS	70-125
ICSAB2	ICSAB	1	101874.4	108669.5	93.75	PASS	70-125	71887.8	75383.9	95.36	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	97228.3	97228.3	100	PASS	70-125	2243050.3	2243050.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	100930.4	97228.3	103.81	PASS	70-125	2469937	2243050.3	110.12	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	98659.8	97228.3	101.47	PASS	70-125	2483146.6	2243050.3	110.7	PASS	70-125
Std3-5/50 ppb	ICAL	1	98939.5	97228.3	101.76	PASS	70-125	2511454.4	2243050.3	111.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	97209.3	97228.3	99.98	PASS	70-125	2474294.3	2243050.3	110.31	PASS	70-125
Std5-20/200 ppb	ICAL	1	94628.7	97228.3	97.33	PASS	70-125	2454264.4	2243050.3	109.42	PASS	70-125
Std6-40/400 ppb	ICAL	1	96625.8	97228.3	99.38	PASS	70-125	2482662.3	2243050.3	110.68	PASS	70-125
Std7-100/1000 ppb	ICAL	1	93800.7	97228.3	96.47	PASS	70-125	2384160	2243050.3	106.29	PASS	70-125
Std8-200/2000 ppb	ICAL	1	91903	97228.3	94.52	PASS	70-125	2381162.9	2243050.3	106.16	PASS	70-125
ICV	ICV	1	86167.9	97228.3	88.62	PASS	70-125	2228240.3	2243050.3	99.34	PASS	70-125
ICB	ICB	1	87460.3	97228.3	89.95	PASS	70-125	2309777.1	2243050.3	102.97	PASS	70-125
LLICV	CCV1	1	80676.4	97228.3	82.98	PASS	70-125	2474165.9	2243050.3	110.3	PASS	70-125
ICSA1	ICSA	1	93276.3	97228.3	95.94	PASS	70-125	2258824.1	2243050.3	100.7	PASS	70-125
ICSAB1	ICSAB	1	83995.5	97228.3	86.39	PASS	70-125	2106118	2243050.3	93.9	PASS	70-125
MB-63964	MBLK	1	94979.2	97228.3	97.69	PASS	70-125	2437198.1	2243050.3	108.66	PASS	70-125
LCS-63964	LCS	1	87657.8	97228.3	90.16	PASS	70-125	2287154.3	2243050.3	101.97	PASS	70-125
N026093-001B	SAMP	1	70381.4	97228.3	72.39	PASS	70-125	1649844.5	2243050.3	73.55	PASS	70-125
N026093-001B	SAMP	5	82467.9	97228.3	84.82	PASS	70-125	1995048	2243050.3	88.94	PASS	70-125
N026093-001B-PS	PS	1	71564.1	97228.3	73.6	PASS	70-125	1725680.7	2243050.3	76.93	PASS	70-125
N026093-001B-MS	MS	1	70416.1	97228.3	72.42	PASS	70-125	1703297.3	2243050.3	75.94	PASS	70-125
N026093-001B-MSD	MSD	1	69236.7	97228.3	71.21	PASS	70-125	1669620.7	2243050.3	74.44	PASS	70-125
N026093-002B	SAMP	1	80149.4	97228.3	82.43	PASS	70-125	1923888.4	2243050.3	85.77	PASS	70-125
N026093-003B	SAMP	1	81299.3	97228.3	83.62	PASS	70-125	1958002.7	2243050.3	87.29	PASS	70-125
N026093-001B	SAMP	10	84272.5	97228.3	86.67	PASS	70-125	2051090.3	2243050.3	91.44	PASS	70-125
CCV1	CCV	1	96456.1	97228.3	99.21	PASS	70-125	2488319.9	2243050.3	110.93	PASS	70-125
CCB1	CCB	1	89993.2	97228.3	92.56	PASS	70-125	2353437	2243050.3	104.92	PASS	70-125
N026093-001B	SAMP	50	84657.1	97228.3	87.07	PASS	70-125	2148135.7	2243050.3	95.77	PASS	70-125
N026093-001B-PS	PS	10	80748.3	97228.3	83.05	PASS	70-125	1991382.2	2243050.3	88.78	PASS	70-125
N026093-001B-MS	MS	10	80485.8	97228.3	82.78	PASS	70-125	2018637.8	2243050.3	90	PASS	70-125
N026093-001B-MSD	MSD	10	79244.1	97228.3	81.5	PASS	70-125	2017297.5	2243050.3	89.94	PASS	70-125
N026093-002B	SAMP	5	81033	97228.3	83.34	PASS	70-125	2041794.2	2243050.3	91.028	PASS	70-125
N026093-003B	SAMP	5	79496.5	97228.3	81.76	PASS	70-125	2025732.5	2243050.3	90.31	PASS	70-125
N026114-001B	SAMP	1	61313.9	97228.3	63.062	NR!	70-125	1525583.2	2243050.3	68.014	NR!	70-125
N026114-001B	SAMP	5	77150.9	97228.3	79.35	PASS	70-125	1912768.3	2243050.3	85.28	PASS	70-125
N026114-002B	SAMP	1	82700.2	97228.3	85.058	PASS	70-125	2046261	2243050.3	91.23	PASS	70-125
N026114-002B	SAMP	5	82577.2	97228.3	84.93	PASS	70-125	2096692.1	2243050.3	93.48	PASS	70-125
CCV2	CCV	1	89554.6	97228.3	92.11	PASS	70-125	2404152.8	2243050.3	107.18	PASS	70-125
CCB2	CCB	1	83822.9	97228.3	86.21	PASS	70-125	2292772	2243050.3	102.22	PASS	70-125
N026114-003B	SAMP	1	68721.8	97228.3	70.68	PASS	70-125	1750106.1	2243050.3	78.023	PASS	70-125
N026114-003B	SAMP	5	77720.4	97228.3	79.94	PASS	70-125	1992650.8	2243050.3	88.84	PASS	70-125
N026114-004B	SAMP	1	83055.2	97228.3	85.42	PASS	70-125	2054912.9	2243050.3	91.61	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	83654.7	97228.3	86.039	PASS	70-125	2107421.9	2243050.3	93.95	PASS	70-125
N026114-005B	SAMP	1	85978.1	97228.3	88.43	PASS	70-125	2166242.6	2243050.3	96.58	PASS	70-125
N026114-006B	SAMP	1	84559.3	97228.3	86.97	PASS	70-125	2103888.9	2243050.3	93.8	PASS	70-125
N026114-007B	SAMP	1	87153	97228.3	89.64	PASS	70-125	2114808.1	2243050.3	94.28	PASS	70-125
N026114-008B	SAMP	1	79709.3	97228.3	81.98	PASS	70-125	1998880.9	2243050.3	89.11	PASS	70-125
N026114-008B	SAMP	250	83394.5	97228.3	85.77	PASS	70-125	2235692.6	2243050.3	99.67	PASS	70-125
N026134-001B	SAMP	1	69764.3	97228.3	71.75	PASS	70-125	1795778.6	2243050.3	80.06	PASS	70-125
CCV3	CCV	1	86586.8	97228.3	89.055	PASS	70-125	2386721.2	2243050.3	106.41	PASS	70-125
CCB3	CCB	1	83164.8	97228.3	85.54	PASS	70-125	2265081.4	2243050.3	100.98	PASS	70-125
N026134-001B	SAMP	5	74564.5	97228.3	76.69	PASS	70-125	1908735.6	2243050.3	85.096	PASS	70-125
N026134-002B	SAMP	1	64618.9	97228.3	66.46	NR!	70-125	1664536	2243050.3	74.21	PASS	70-125
N026134-002B	SAMP	5	71691	97228.3	73.73	PASS	70-125	1967631.2	2243050.3	87.72	PASS	70-125
N026134-003B	SAMP	1	62123.1	97228.3	63.89	NR!	70-125	1605688.4	2243050.3	71.59	PASS	70-125
N026134-003B	SAMP	5	70929.3	97228.3	72.95	PASS	70-125	1867537.2	2243050.3	83.26	PASS	70-125
N026134-004B	SAMP	1	56047.3	97228.3	57.65	NR!	70-125	1434636.9	2243050.3	63.96	NR!	70-125
N026134-004B	SAMP	5	68138	97228.3	70.08	PASS	70-125	1850107.2	2243050.3	82.48	PASS	70-125
N026156-001B	SAMP	1	72393.8	97228.3	74.46	PASS	70-125	1858193.3	2243050.3	82.84	PASS	70-125
N026156-001B	SAMP	5	78373.3	97228.3	80.61	PASS	70-125	2026281.2	2243050.3	90.34	PASS	70-125
N026156-002B	SAMP	1	59376.6	97228.3	61.069	NR!	70-125	1504872.3	2243050.3	67.09	NR!	70-125
CCV4	CCV	1	85204.2	97228.3	87.63	PASS	70-125	2428459.4	2243050.3	108.27	PASS	70-125
CCB4	CCB	1	80957.4	97228.3	83.27	PASS	70-125	2286561	2243050.3	101.94	PASS	70-125
N026156-002B	SAMP	5	71246.4	97228.3	73.28	PASS	70-125	1823694.6	2243050.3	81.3	PASS	70-125
N026156-003B	SAMP	1	58490.5	97228.3	60.16	NR!	70-125	1529280.9	2243050.3	68.18	NR!	70-125
N026156-003B	SAMP	5	70812.3	97228.3	72.83	PASS	70-125	1857493.7	2243050.3	82.81	PASS	70-125
N026114-007B	SAMP	1	81942.1	97228.3	84.28	PASS	70-125	2095113.6	2243050.3	93.4	PASS	70-125
N026156-001B	SAMP	1	72040.1	97228.3	74.094	PASS	70-125	1851139.5	2243050.3	82.53	PASS	70-125
CCV5	CCV	1	89812.7	97228.3	92.37	PASS	70-125	2413691.5	2243050.3	107.61	PASS	70-125
CCB5	CCB	1	83180.4	97228.3	85.55	PASS	70-125	2295865.5	2243050.3	102.35	PASS	70-125
LLCCV1	CCV2	1	95088.2	97228.3	97.8	PASS	70-125	2615823.9	2243050.3	116.62	PASS	70-125
ICSA2	ICSA	1	71743.9	97228.3	73.79	PASS	70-125	2048243.3	2243050.3	91.32	PASS	70-125
ICSAB2	ICSAB	1	76755.7	97228.3	78.94	PASS	70-125	1999888	2243050.3	89.16	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026114
Test Method: EPA 6020
Analysis Date: 10/12/2017

Matrix: Groundwater
Batch No.: 63964

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr and Se. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026093-001B DT 5X	Arsenic	ug/L	4.399552	PASS	4.206121	4.60%	10
N026093-001B DT 5X	Chromium	ug/L	0	NA	0		10
N026093-001B DT 50X	Manganese	ug/L	998.3813	PASS	954.6786	4.58%	10
N026093-001B DT 5X	Molybdenum	ug/L	64.51221	PASS	61.87842	4.26%	10
N026093-001B DT 5X	Selenium	ug/L	0.16919	NA	0.096195	75.88%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.568	0.10	10.00	4.206	93.6	80	120				
Molybdenum	71.753	0.50	10.00	61.88	98.7	80	120				
Selenium	9.616	0.50	10.00	0.09619	95.2	80	120				

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1082.468	5.0	100.0	954.7	128	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026114
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N026093-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789560

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.670	1.0	10.00	0	86.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026134

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 28, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ritucci for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N026134-002 and -004 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N026134-002, -003 and -004 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

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"Serving Clients with Passion and Professionalism"
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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026134
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026134-001A	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-001B	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-001C	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-001D	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-002A	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-002B	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-002C	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-002D	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-003A	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-003B	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-003C	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-003D	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-004A	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-004B	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-004C	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-004D	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-005A	MW-707-Q317	Groundwater	9/27/2017 3:45:00 PM	9/28/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 9:08:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	8300	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026134-004DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**118171**
Client ID:	**ZZZZZZ**	Batch ID:	**R118171**	TestNo:	**EPA 120.1**			Analysis Date:	**9/28/2017**	SeqNo:	**2775433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15790.000	0.10						15770	0.127	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 9:08:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	42	0.17	1.0		µg/L	5	9/29/2017 07:32 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	39	0.019	1.0		µg/L	1	10/12/2017 09:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	9/29/2017 06:36 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/12/2017 09:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	41	0.17	1.0		µg/L	5	9/29/2017 05:01 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	41	0.019	1.0		µg/L	1	10/12/2017 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.8	0.17	1.0		µg/L	5	9/29/2017 06:55 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.6	0.019	1.0		µg/L	1	10/12/2017 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-707-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/29/2017 05:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118231**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **PBW**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118231**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **LCSW**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.949	0.20	5.000	0	99.0	90	110				

Sample ID **N026114-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.584	1.0	5.000	0	91.7	90	110				

Sample ID **N026114-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	989.020	20	500.0	480.4	102	90	110				

Sample ID **N026114-003ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	479.180	20						480.4	0.261	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026114-003AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	978.460	20	500.0	480.4	99.6	90	110	989.0	1.07	20	

Sample ID **N026114-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	219.714	4.0	100.0	122.7	97.0	90	110				

Sample ID **N026114-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	599.210	10	250.0	348.6	100	90	110				

Sample ID **N026114-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.838	0.20	1.000	3.838	99.9	90	110				

Sample ID **N026114-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.100	0.20	1.000	3.101	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026114-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777697

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.081	0.20	1.000	3.110	97.2	90	110				

Sample ID	N026114-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777699

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.020	0.20	1.000	0	102	90	110				

Sample ID	N026114-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777701

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	29667.000	400	10000	20180	94.9	90	110				

Sample ID	N026134-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777703

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	65.644	1.0	25.00	41.14	98.0	90	110				

Sample ID	N026134-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777707

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026134-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.268	1.0	5.000	0.2765	99.8	90	110				

Sample ID **N026134-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.621	1.0	5.000	3.798	96.4	90	110				

Sample ID **N026134-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	66.685	1.0	25.00	41.76	99.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63964	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	PBW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63964	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	LCSW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789562

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 9:08:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.2	0.11	0.25		mg/L	5	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.12	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118390	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	PBW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118390	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	LCSW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID	N026134-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03340	0	20	

Sample ID	N026134-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785154

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.735	0.25	2.500	3.209	101	75	125				

Sample ID	N026134-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785155

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.759	0.25	2.500	3.209	102	75	125	5.735	0.418	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026134
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026134-001

Client Sample ID: MW-58BR-Q317
Collection Date: 9/27/2017 9:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.6	0.025	0.10		µg/L	1	10/12/2017 09:27 AM
Manganese	340	0.28	2.5		µg/L	5	10/12/2017 09:43 AM
Molybdenum	21	0.039	0.50		µg/L	1	10/12/2017 09:27 AM
Selenium	1.8	0.028	0.50		µg/L	1	10/12/2017 09:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**				PrepDate	**9/29/2017**	Analyst: **CEI**
Arsenic	4.3	0.025	0.10		µg/L	1	10/12/2017 09:49 AM
Manganese	110	0.056	0.50		µg/L	1	10/12/2017 09:49 AM
Molybdenum	40	0.039	0.50		µg/L	1	10/12/2017 09:49 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 09:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.3	0.025	0.10		µg/L	1	10/12/2017 10:00 AM
Manganese	34	0.056	0.50		µg/L	1	10/12/2017 10:00 AM
Molybdenum	30	0.039	0.50		µg/L	1	10/12/2017 10:00 AM
Selenium	4.3	0.14	2.5		µg/L	5	10/12/2017 10:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	15	0.025	0.10		µg/L	1	10/12/2017 10:11 AM
Manganese	8.8	0.056	0.50		µg/L	1	10/12/2017 10:11 AM
Molybdenum	78	0.19	2.5		µg/L	5	10/12/2017 10:17 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 10:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE		1. Chilled	✓	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker		RWQCB	✓	2. Headspace		
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Labspec		CalTrans		3. Container Intact		
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200 Fax:	Others	✓	LEVEL III		4. Seal Present		
Title: SR. Technician	Phone: 916-786-3302 Fax:		Specify: RWQCB		LEVEL IV		5. IR number		
Signature: Date: 9/27/17	Sampled By: Gary Clift		Global ID:		Regulatory		6. Method of Cooling: ICE		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*				Specify State: CA		Sample Temp: 2.2c		
Project Name: PG&E Topock - GMP	Signature: Date: 9/27/2017						Courier: Lab		
Project Number: RC000753.0801							Tracking No.:		

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese, HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr, HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026134 - 01	MW-58BR-Q317	9/27/2017	9:08		X		X	X	X	X	X		X					E	4	P	BN
2	- 02	MW-62-110-Q317	9/27/2017	8:10		X		X	X	X	X	X		X					E	4	P	BN
3	- 03	MW-73-080-Q317	9/27/2017	10:47		X		X	X	X	X	X		X					E	4	P	BN
4	- 04	MW-72BR-200-Q317	9/27/2017	15:30		X		X	X	X	X	X		X					E	4	P	BN
5	- 05	MW-707-Q317	9/27/2017	15:45		X													E	1	P	BN
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
GARY CLIFT	9/27/17		9/29/17 1610
	9/28/17 0050		9/28/17 0050

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C		
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$			
Others/Specify:	B	(NH4)2SO4/NH4OH			

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/28/2017	Workorder:	N026134
Rep sample Temp (Deg C):	2.2	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/2/2017

Reviewed By: 10/11/2017

Sonny Lorenzo

From:	Marlon B. Cartin <marlon@assetlaboratories.com>
Sent:	Wednesday, October 04, 2017 9:26 AM
To:	'Madsen, Laura'; 'ASSET LV Sample Control'; 'Fernando Rivera'
Cc:	'Bush, Dan'; 'Serna, Erica'; 'Jeffers, Gantt'; 'Clift, Gary'; 'Kalib Sumter'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'; 'Yoandra Rodriguez'
Subject:	RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017

We will process this Laura.

Sonny/Andrea – Please add in LIMS and inform the analyst ASAP.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:25 AM
To: ASSET LV Sample Control; Marlon B. Cartin; 'Fernando Rivera'
Cc: Madsen, Laura; Bush, Dan; Serna, Erica; Jeffers, Gantt; Clift, Gary; Kalib Sumter
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017
Importance: High

Hi Marlon,
Please revise the following SDGs to include dissolved arsenic. It was missed on the COC.

N026114	MW-38S-Q317
N026114	MW-38S-SMT-Q317
N026114	MW-901-Q317
N026134	MW-58BR-Q317
N026114	MW-60BR-245-Q317
N026093	MW-62-065-Q317
N026093	MW-902-Q317
N026134	MW-62-110-Q317
N026093	MW-64BR-Q317
N026114	MW-65-160-Q317
N026114	MW-65-225-Q317
N026114	MW-68-180-Q317
N026114	MW-69-195-Q317
N026134	MW-72BR-200-Q317
N026134	MW-73-080-Q317

Thanks,
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Tuesday, September 26, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N026093 COC and Work Order Summary for Samples Received 9/25/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 9/25/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer



California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
www.assetlaboratories.com

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ASSET Laboratories

WORK ORDER Summary

28-Sep-17

WorkOrder: N026134

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026134-001A	MW-58BR-Q317	9/27/2017 9:08:00 AM	10/12/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-001B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-001C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-001D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-002A	MW-62-110-Q317	9/27/2017 8:10:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-002B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-002C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-002D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-003A	MW-73-080-Q317	9/27/2017 10:47:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-003B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-003C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-003D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-004A	MW-72BR-200-Q317	9/27/2017 3:30:00 PM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-004B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Sep-17

WorkOrder: N026134

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026134-004B	MW-72BR-200-Q317	9/27/2017 3:30:00 PM	10/12/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-004C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-004D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-005A	MW-707-Q317	9/27/2017 3:45:00 PM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-006A	FOLDER	10/12/2017	10/12/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/12/2017		Folder	Folder	☐	☐	☐	LAB
			10/12/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N026134

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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ASSET Laboratories Work Order: N026134

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October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026134

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 28, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucan for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026134

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N026134-002 and -004 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N026134-002, -003 and -004 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026134
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026134-001A	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-001B	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-001C	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-001D	MW-58BR-Q317	Groundwater	9/27/2017 9:08:00 AM	9/28/2017	10/13/2017
N026134-002A	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-002B	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-002C	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-002D	MW-62-110-Q317	Groundwater	9/27/2017 8:10:00 AM	9/28/2017	10/13/2017
N026134-003A	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-003B	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-003C	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-003D	MW-73-080-Q317	Groundwater	9/27/2017 10:47:00 AM	9/28/2017	10/13/2017
N026134-004A	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-004B	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-004C	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-004D	MW-72BR-200-Q317	Groundwater	9/27/2017 3:30:00 PM	9/28/2017	10/13/2017
N026134-005A	MW-707-Q317	Groundwater	9/27/2017 3:45:00 PM	9/28/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 9:08:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	8300	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170928C**	QC Batch: **R118171**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/28/2017 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N026134-004DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:					RunNo: **118171**		
Client ID: **ZZZZZZ**	Batch ID: **R118171**	TestNo: **EPA 120.1**		Analysis Date: **9/28/2017**					SeqNo: **2775433**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15790.000	0.10						15770	0.127	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 9:08:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	42	0.17	1.0		µg/L	5	9/29/2017 07:32 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	39	0.019	1.0		µg/L	1	10/12/2017 09:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	9/29/2017 06:36 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/12/2017 09:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	41	0.17	1.0		µg/L	5	9/29/2017 05:01 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	41	0.019	1.0		µg/L	1	10/12/2017 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A** QC Batch: **R118231**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	3.8	0.17	1.0		µg/L	5	9/29/2017 06:55 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.6	0.019	1.0		µg/L	1	10/12/2017 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026134
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026134-005

Client Sample ID: MW-707-Q317
Collection Date: 9/27/2017 3:45:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170928A**	QC Batch: **R118231**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	9/29/2017 05:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R118231**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID:	**PBW**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R118231**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID:	**LCSW**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.949	0.20	5.000	0	99.0	90	110				

Sample ID	**N026114-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID:	**ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.584	1.0	5.000	0	91.7	90	110				

Sample ID	**N026114-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID:	**ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	989.020	20	500.0	480.4	102	90	110				

Sample ID	**N026114-003ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID:	**ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	479.180	20						480.4	0.261	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026114-003AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	978.460	20	500.0	480.4	99.6	90	110	989.0	1.07	20	

Sample ID **N026114-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	219.714	4.0	100.0	122.7	97.0	90	110				

Sample ID **N026114-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	599.210	10	250.0	348.6	100	90	110				

Sample ID **N026114-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.838	0.20	1.000	3.838	99.9	90	110				

Sample ID **N026114-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.100	0.20	1.000	3.101	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026114-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.081	0.20	1.000	3.110	97.2	90	110				

Sample ID **N026114-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.020	0.20	1.000	0	102	90	110				

Sample ID **N026114-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	29667.000	400	10000	20180	94.9	90	110				

Sample ID **N026134-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	65.644	1.0	25.00	41.14	98.0	90	110				

Sample ID **N026134-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026134-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777709

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.268	1.0	5.000	0.2765	99.8	90	110				

Sample ID	N026134-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777711

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.621	1.0	5.000	3.798	96.4	90	110				

Sample ID	N026134-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118231
Client ID:	ZZZZZZ	Batch ID:	R118231	TestNo:	EPA 218.6			Analysis Date:	9/29/2017	SeqNo:	2777715

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	66.685	1.0	25.00	41.76	99.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 9:08:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.2	0.11	0.25		mg/L	5	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.12	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R118390**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **PBW**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **LCS-R118390**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **LCSW**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID **N026134-002CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ZZZZZZ**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03340	0	20	

Sample ID **N026134-003CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ZZZZZZ**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.735	0.25	2.500	3.209	101	75	125				

Sample ID **N026134-003CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ZZZZZZ**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.759	0.25	2.500	3.209	102	75	125	5.735	0.418	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026134
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026134-001

Client Sample ID: MW-58BR-Q317
Collection Date: 9/27/2017 9:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.6	0.025	0.10		µg/L	1	10/12/2017 09:27 AM
Manganese	340	0.28	2.5		µg/L	5	10/12/2017 09:43 AM
Molybdenum	21	0.039	0.50		µg/L	1	10/12/2017 09:27 AM
Selenium	1.8	0.028	0.50		µg/L	1	10/12/2017 09:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 8:10:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**				PrepDate	**9/29/2017**	Analyst: **CEI**
Arsenic	4.3	0.025	0.10		µg/L	1	10/12/2017 09:49 AM
Manganese	110	0.056	0.50		µg/L	1	10/12/2017 09:49 AM
Molybdenum	40	0.039	0.50		µg/L	1	10/12/2017 09:49 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 09:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 10:47:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.3	0.025	0.10		µg/L	1	10/12/2017 10:00 AM
Manganese	34	0.056	0.50		µg/L	1	10/12/2017 10:00 AM
Molybdenum	30	0.039	0.50		µg/L	1	10/12/2017 10:00 AM
Selenium	4.3	0.14	2.5		µg/L	5	10/12/2017 10:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-Q317
Lab Order:	N026134	**Collection Date:**	9/27/2017 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026134-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**				PrepDate	**9/29/2017**	Analyst: **CEI**
Arsenic	15	0.025	0.10		µg/L	1	10/12/2017 10:11 AM
Manganese	8.8	0.056	0.50		µg/L	1	10/12/2017 10:11 AM
Molybdenum	78	0.19	2.5		µg/L	5	10/12/2017 10:17 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 10:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#	Labspec	CalTrans	2. Headspace
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200	Fax:	Others ✓	LEVEL III	3. Container Intact
Title: SR. Technician	Phone: 916-786-3302 Fax:			Specify: RWQCB	LEVEL IV	4. Seal Present
				Global ID:	Regulatory	5. IR number
					Specify State: CA	6. Method of Cooling: ICE
						Sample Temp: 2.2c

Signature: Date: 9/27/17
I hereby authorize ASSET Labs to perform the tests indicated below.

Project Name: PG&E Topock - GMP
Project Number: RC000753.0801

Sampled By: Gary Clift
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.
Signature: Date: 9/27/2017

Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface

Courier: Lab
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026134 - 01	MW-58BR-Q317	9/27/2017	9:08		X		X	X	X	X	X		X					E	4	P	BN	
2	- 02	MW-62-110-Q317	9/27/2017	8:10		X		X	X	X	X	X		X					E	4	P	BN	
3	- 03	MW-73-080-Q317	9/27/2017	10:47		X		X	X	X	X	X		X					E	4	P	BN	
4	- 04	MW-72BR-200-Q317	9/27/2017	15:30		X		X	X	X	X	X		X					E	4	P	BN	
5	- 05	MW-707-Q317	9/27/2017	15:45		X													E	1	P	BN	
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name): GARY CLIFT Date/Time: 9/27/17
Relinquished by (Signature and Printed Name): Date/Time: 9/29/17 1610
Relinquished by (Signature and Printed Name): Date/Time: 9/28/17 0050
Relinquished by (Signature and Printed Name): Date/Time: 9/28/17 0050
Relinquished by (Signature and Printed Name): Date/Time:
Relinquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		
Others/Specify:	B	(NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/28/2017	Workorder:	N026134
Rep sample Temp (Deg C):	2.2	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/2/2017

Reviewed By: 10/11/2017

Sonny Lorenzo

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, October 04, 2017 9:26 AM
To: 'Madsen, Laura'; 'ASSET LV Sample Control'; 'Fernando Rivera'
Cc: 'Bush, Dan'; 'Serna, Erica'; 'Jeffers, Gantt'; 'Clift, Gary'; 'Kalib Sumter'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'; 'Yoandra Rodriguez'
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017

We will process this Laura.

Sonny/Andrea – Please add in LIMS and inform the analyst ASAP.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:25 AM
To: ASSET LV Sample Control; Marlon B. Cartin; 'Fernando Rivera'
Cc: Madsen, Laura; Bush, Dan; Serna, Erica; Jeffers, Gantt; Clift, Gary; Kalib Sumter
Subject: RE: N026093 COC and Work Order Summary for Samples Received 9/25/2017
Importance: High

Hi Marlon,
Please revise the following SDGs to include dissolved arsenic. It was missed on the COC.

N026114	MW-38S-Q317
N026114	MW-38S-SMT-Q317
N026114	MW-901-Q317
N026134	MW-58BR-Q317
N026114	MW-60BR-245-Q317
N026093	MW-62-065-Q317
N026093	MW-902-Q317
N026134	MW-62-110-Q317
N026093	MW-64BR-Q317
N026114	MW-65-160-Q317
N026114	MW-65-225-Q317
N026114	MW-68-180-Q317
N026114	MW-69-195-Q317
N026134	MW-72BR-200-Q317
N026134	MW-73-080-Q317

Thanks,
Laura

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Tuesday, September 26, 2017 9:01 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Maurel, Sean <Sean.Maurel@arcadis.com>; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Vadpey, Nick <Nicholas.Vadpey@arcadis.com>; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N026093 COC and Work Order Summary for Samples Received 9/25/2017

Hi Dan Bush:

Enclosed are COC and WO Summary for samples received 9/25/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
www.assetlaboratories.com

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ASSET Laboratories

WORK ORDER Summary

28-Sep-17

WorkOrder: N026134

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026134-001A	MW-58BR-Q317	9/27/2017 9:08:00 AM	10/12/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-001B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-001C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-001D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-002A	MW-62-110-Q317	9/27/2017 8:10:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-002B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-002C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-002D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-003A	MW-73-080-Q317	9/27/2017 10:47:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-003B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-003C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-003D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-004A	MW-72BR-200-Q317	9/27/2017 3:30:00 PM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-004B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

28-Sep-17

WorkOrder: N026134

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026134-004B	MW-72BR-200-Q317	9/27/2017 3:30:00 PM	10/12/2017	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026134-004C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026134-004D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026134-005A	MW-707-Q317	9/27/2017 3:45:00 PM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026134-006A	FOLDER	10/12/2017	10/12/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/12/2017		Folder	Folder	☐	☐	☐	LAB
			10/12/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N026134**

NAME	TEST METHOD
Claire Ignacio	EPA 6020
Quennie Manimtim	SM 4500-NO3F
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118171 **Analyst:** LSR

ASSET #: N026134 **Date Analyzed:** 9/28/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/3/2017

2nd Level Reviewer: 10/12/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/28/17 1100
Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 mS/cm	CINV-170620B	9.44 mS/cm @ 22.9°C	% Rec: (90-110%)
1410	170822C	1419 @ 22.8°C	
9976	170615H	10050 @ 22.8°C	
99672	170822E	99400 @ 22.7°C	

	Sample ID	Matrix	Reading	Comments
1	NO26134-001P	H2O	8280 @ 21.1°C	
2	2D		11,120 @ 20.9°C	
3	3D		11,540 @ 21.2°C	
4	4D		15,770 @ 20.7°C	
5	4DDUP		15,790 @ 20.7°C	
6				
7				
8	1413 mS/cm	CINV-170615G	1468 mS/cm @ 21.8°C	
9	10,000	170125E	10230 @ 21.9°C	
10	99672	170831B	100900 @ 22.0°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Julia Ramit 10/3/2017

Date: 9/29/17 1015
Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 mS/cm	CINV-170620B	9.48 mS/cm @ 22.8°C	% Rec: (90-110%)
1410	170822C	1447 @ 22.5°C	
9976	170615H	9920 @ 22.6°C	
99672	170822E	99400 @ 22.6°C	

	Sample ID	Matrix	Reading	Comments
1	NO 26156-001D	H2O	6650 @ 21.4°C	
2	2D		16260 @ 21.2°C	
3	3D		16110 @ 20.9°C	
4	3DDUP		16180 @ 21.5°C	
5				
6				
7				
8				
9	1413 mS/cm	CINV-170615G	1463 mS/cm @ 22.4°C	
10	10000	170125E	10320 @ 22.5°C	
Dup	99672	170831B	100600 @ 22.5°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R118231
ASSET #: N026134

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 9/28/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)	X			X		
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X					
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

Samples N026134-002 and -004 required dilution due to matrix.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 10/7/2017

2nd Level Reviewer 10/10/2017 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N026134-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 8.3516 * 5$$

$$Cr^{+6}, \mu g/L = 41.76$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 42}$$

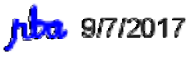
rba 10/7/2017

ANALYSIS RUN LOG

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported



Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 9/7/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170928A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**29/Sep/17 08:31:32**
No. of Injections:	**81**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/28/2017 21:00	Finished	BLANK
11	BLANK	2	1000	Unknown		09/28/2017 21:11	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/28/2017 21:21	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/28/2017 21:30	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/28/2017 21:39	Finished	CCB R170912A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/28/2017 21:49	Finished	MB R170912A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/28/2017 21:58	Finished	LCS, IWST-170622D
17	N026114-001A,SAMP	8	1000	Unknown		09/28/2017 22:08	Finished	SAMP,2>10mL
18	N026114-001AMS,MS	9	1000	Unknown		09/28/2017 22:17	Finished	MS (5ppb), IWST-170622D,2>1
19	N026114-001AMS,MS	10	1000	Unknown		09/28/2017 22:27	Finished	MS (1ppb), IWST-170622D,2>1
20	N026114-001A,SAMP	11	1000	Unknown		09/28/2017 22:38	Finished	SAMP,10mL
21	N026114-001AMS,MS	12	1000	Unknown		09/28/2017 22:48	Finished	MS (1ppb), IWST-170622D,10
22	N026114-003A,SAMP	13	1000	Unknown		09/28/2017 22:57	Finished	SAMP,0.1>10mL
23	N026114-003AMS,MS	14	1000	Unknown		09/28/2017 23:06	Finished	MS (5ppb), IWST-170622D,0.1
24	N026114-003ADUP,D	15	1000	Unknown		09/28/2017 23:16	Finished	DUP,0.1>10mL
25	CCV-2,CCV1,1,	16	1000	Unknown		09/28/2017 23:25	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		09/28/2017 23:35	Finished	CCB R170921A
27	N026153-007C,SAMP	19	1000	Unknown		09/28/2017 23:45	Finished	SAMP,10mL
28	N026153-006C,SAMP	20	1000	Unknown		09/28/2017 23:56	Finished	SAMP,10mL
29	N026153-003C,SAMP	21	1000	Unknown		09/29/2017 00:06	Finished	SAMP,10mL
30	N026153-004C,SAMP	22	1000	Unknown		09/29/2017 00:15	Finished	SAMP,10mL
31	N026153-007CREP,D	23	1000	Unknown		09/29/2017 00:25	Finished	REP,10mL
32	N026153-006CREP,D	24	1000	Unknown		09/29/2017 00:34	Finished	REP,10mL
33	N026153-003CREP,D	25	1000	Unknown		09/29/2017 00:44	Finished	REP,10mL
34	N026153-004C,SAMP	26	1000	Unknown		09/29/2017 00:53	Finished	SAMP,0.1>10mL
35	N026153-004CREP,D	27	1000	Unknown		09/29/2017 01:02	Finished	REP,0.1>10mL
36	N026153-007CREP,D	28	1000	Unknown		09/29/2017 01:12	Finished	REP,10mL
37	CCV-3,CCV,1,	29	1000	Unknown		09/29/2017 01:21	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		09/29/2017 01:31	Finished	CCB R170921A
39	CCB-3,CCB,1,	31	1000	Unknown		09/29/2017 01:48	Finished	CCB R170921A
40	N026114-003AMSD,M	32	1000	Unknown		09/29/2017 01:59	Finished	MSD (5ppb), IWST-170622D,0.
41	N026114-002A,SAMP	33	1000	Unknown		09/29/2017 02:08	Finished	SAMP,0.5>10mL
42	N026114-002AMS,MS	34	1000	Unknown		09/29/2017 02:18	Finished	MS (5ppb), IWST-170622D,0.5
43	N026114-004A,SAMP	1	1000	Unknown		09/29/2017 02:28	Finished	SAMP,0.2>10mL
44	N026114-004AMS,MS	2	1000	Unknown		09/29/2017 02:39	Finished	MS (5ppb), IWST-170622D,0.2
45	N026114-005A,SAMP	3	1000	Unknown		09/29/2017 02:49	Finished	SAMP,10mL
46	N026114-005AMS,MS	4	1000	Unknown		09/29/2017 02:58	Finished	MS (1ppb), IWST-170622D,10
47	N026114-006A,SAMP	5	1000	Unknown		09/29/2017 03:07	Finished	SAMP,10mL
48	N026114-006AMS,MS	6	1000	Unknown		09/29/2017 03:17	Finished	MS (1ppb), IWST-170622D,10
49	N026114-007A,SAMP	7	1000	Unknown		09/29/2017 03:26	Finished	SAMP,10mL
50	CCV-4,CCV1,1,	8	1000	Unknown		09/29/2017 03:36	Finished	CCV @10ppb, IWST-170622C
51	CCB-4,CCB,1,	9	1000	Unknown		09/29/2017 03:45	Finished	CCB R170921A
52	N026114-007AMS,MS	10	1000	Unknown		09/29/2017 03:55	Finished	MS (1ppb), IWST-170622D,10
53	N026114-009A,SAMP	11	1000	Unknown		09/29/2017 04:04	Finished	SAMP,10mL
54	N026114-009AMS,MS	12	1000	Unknown		09/29/2017 04:14	Finished	MS (1ppb), IWST-170622D,10
55	N026114-008A,SAMP	13	1000	Unknown		09/29/2017 04:23	Finished	SAMP,0.005>10mL
56	N026114-008AMS,MS	14	1000	Unknown		09/29/2017 04:33	Finished	MS (5ppb), IWST-170622D,0.0
57	N026134-001A,SAMP	15	1000	Unknown		09/29/2017 04:42	Finished	SAMP,10mL
58	N026134-001AMS,MS	16	1000	Unknown		09/29/2017 04:52	Finished	MS (5ppb), IWST-170622D,10
59	N026134-003A,SAMP	17	1000	Unknown		09/29/2017 05:01	Finished	SAMP,2>10mL
60	N026134-003AMS,MS	18	1000	Unknown		09/29/2017 05:10	Finished	MS (5ppb), IWST-170622D,2>1

61	N026134-005A,SAMP	19	1000	Unknown		09/29/2017 05:20	Finished	SAMP,10mL
62	CCV-5,CCV,1,	20	1000	Unknown		09/29/2017 05:29	Finished	CCV @5ppb, IWST-170622C
63	CCB-5,CCB,1,	21	1000	Unknown		09/29/2017 05:39	Finished	CCB R170921A
64	N026134-005AMS,MS	22	1000	Unknown		09/29/2017 05:48	Finished	MS (1ppb), IWST-170622D,10
65	N026134-002A,SAMP	23	1000	Unknown		09/29/2017 05:58	Finished	SAMP,10mL
66	N026134-002AMS,MS	24	1000	Unknown		09/29/2017 06:07	Finished	MS (1ppb), IWST-170622D,10
67	N026134-004A,SAMP	25	1000	Unknown		09/29/2017 06:17	Finished	SAMP,10mL
68	N026134-004AMS,MS	26	1000	Unknown		09/29/2017 06:26	Finished	MS (1ppb), IWST-170622D,10
69	N026134-002A,SAMP	27	1000	Unknown		09/29/2017 06:36	Finished	SAMP,2>10mL
70	N026134-002AMS,MS	28	1000	Unknown		09/29/2017 06:45	Finished	MS (1ppb), IWST-170622D,2>
71	N026134-004A,SAMP	29	1000	Unknown		09/29/2017 06:55	Finished	SAMP,2>10mL
72	N026134-004AMS,MS	30	1000	Unknown		09/29/2017 07:04	Finished	MS (1ppb), IWST-170622D,2>
73	CCV-6,CCV1,1,	31	1000	Unknown		09/29/2017 07:13	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	32	1000	Unknown		09/29/2017 07:23	Finished	CCB R170921A
75	N026134-001A,SAMP	33	1000	Unknown		09/29/2017 07:32	Finished	SAMP,2>10mL
76	N026134-001AMS,MS	34	1000	Unknown		09/29/2017 07:42	Finished	MS (5ppb), IWST-170622D,2>
77	CCV-7,CCV,1,	35	1000	Unknown		09/29/2017 07:51	Finished	CCV @10ppb, IWST-170622C
78	CCB-7,CCB,1,	36	1000	Unknown		09/29/2017 08:01	Finished	CCB R170921A
79	SHUTDOWN	37	1000	Unknown		09/29/2017 08:10	Finished	
80	Eluent: R170927C	38	1000	Unknown		n.a.	Finished	Eluent
81	PCR: R170926A	39	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:00 PM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:11 PM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/28/17 9:21 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/28/17 9:30 PM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/28/17 9:39 PM	Reported
15	MB-R118231	MBLK	1	Hexavalent Chromium	09/28/17 9:49 PM	Reported
16	LCS-R118231	LCS	1	Hexavalent Chromium	09/28/17 9:58 PM	Reported
17	N026114-001A	SAMP	5	Hexavalent Chromium	09/28/17 10:08 PM	Reported
18	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:17 PM	Reported
19	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:27 PM	Reported
20	N026114-001A	SAMP	1	Hexavalent Chromium	09/28/17 10:38 PM	Not Reported
21	N026114-001AMS	MS	1	Hexavalent Chromium	09/28/17 10:48 PM	Not Reported
22	N026114-003A	SAMP	100	Hexavalent Chromium	09/28/17 10:57 PM	Reported
23	N026114-003AMS	MS	100	Hexavalent Chromium	09/28/17 11:06 PM	Reported
24	N026114-003ADUP	DUP	100	Hexavalent Chromium	09/28/17 11:16 PM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/28/17 11:25 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/28/17 11:35 PM	Reported
27	N026153-007C	SAMP	1	Hexavalent Chromium	09/28/17 11:45 PM	Reported
28	N026153-006C	SAMP	1	Hexavalent Chromium	09/28/17 11:56 PM	Reported
29	N026153-003C	SAMP	1	Hexavalent Chromium	09/29/17 12:06 AM	Reported
30	N026153-004C	SAMP	1	Hexavalent Chromium	09/29/17 12:15 AM	Not Reported
31	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 12:25 AM	Not Reported
32	N026153-006CREP	DUP	1	Hexavalent Chromium	09/29/17 12:34 AM	Reported
33	N026153-003CREP	DUP	1	Hexavalent Chromium	09/29/17 12:44 AM	Reported
34	N026153-004C	SAMP	100	Hexavalent Chromium	09/29/17 12:53 AM	Reported
35	N026153-004CREP	DUP	100	Hexavalent Chromium	09/29/17 1:02 AM	Reported
36	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 1:12 AM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	09/29/17 1:21 AM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:31 AM	Not Reported
39	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:48 AM	Reported
40	N026114-003AMSD	MSD	100	Hexavalent Chromium	09/29/17 1:59 AM	Reported
41	N026114-002A	SAMP	20	Hexavalent Chromium	09/29/17 2:08 AM	Reported
42	N026114-002AMS	MS	20	Hexavalent Chromium	09/29/17 2:18 AM	Reported

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026114-004A	SAMP	50	Hexavalent Chromium	09/29/17 2:28 AM	Reported
44	N026114-004AMS	MS	50	Hexavalent Chromium	09/29/17 2:39 AM	Reported
45	N026114-005A	SAMP	1	Hexavalent Chromium	09/29/17 2:49 AM	Reported
46	N026114-005AMS	MS	1	Hexavalent Chromium	09/29/17 2:58 AM	Reported
47	N026114-006A	SAMP	1	Hexavalent Chromium	09/29/17 3:07 AM	Reported
48	N026114-006AMS	MS	1	Hexavalent Chromium	09/29/17 3:17 AM	Reported
49	N026114-007A	SAMP	1	Hexavalent Chromium	09/29/17 3:26 AM	Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	09/29/17 3:36 AM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	09/29/17 3:45 AM	Reported
52	N026114-007AMS	MS	1	Hexavalent Chromium	09/29/17 3:55 AM	Reported
53	N026114-009A	SAMP	1	Hexavalent Chromium	09/29/17 4:04 AM	Reported
54	N026114-009AMS	MS	1	Hexavalent Chromium	09/29/17 4:14 AM	Reported
55	N026114-008A	SAMP	2000	Hexavalent Chromium	09/29/17 4:23 AM	Reported
56	N026114-008AMS	MS	2000	Hexavalent Chromium	09/29/17 4:33 AM	Reported
57	N026134-001A	SAMP	1	Hexavalent Chromium	09/29/17 4:42 AM	Not Reported
58	N026134-001AMS	MS	1	Hexavalent Chromium	09/29/17 4:52 AM	Not Reported
59	N026134-003A	SAMP	5	Hexavalent Chromium	09/29/17 5:01 AM	Reported
60	N026134-003AMS	MS	5	Hexavalent Chromium	09/29/17 5:10 AM	Reported
61	N026134-005A	SAMP	1	Hexavalent Chromium	09/29/17 5:20 AM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	09/29/17 5:29 AM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	09/29/17 5:39 AM	Reported
64	N026134-005AMS	MS	1	Hexavalent Chromium	09/29/17 5:48 AM	Reported
65	N026134-002A	SAMP	1	Hexavalent Chromium	09/29/17 5:58 AM	Reported
66	N026134-002AMS	MS	1	Hexavalent Chromium	09/29/17 6:07 AM	Reported
67	N026134-004A	SAMP	1	Hexavalent Chromium	09/29/17 6:17 AM	Reported
68	N026134-004AMS	MS	1	Hexavalent Chromium	09/29/17 6:26 AM	Reported
69	N026134-002A	SAMP	5	Hexavalent Chromium	09/29/17 6:36 AM	Not Reported
70	N026134-002AMS	MS	5	Hexavalent Chromium	09/29/17 6:45 AM	Not Reported
71	N026134-004A	SAMP	5	Hexavalent Chromium	09/29/17 6:55 AM	Not Reported
72	N026134-004AMS	MS	5	Hexavalent Chromium	09/29/17 7:04 AM	Not Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	09/29/17 7:13 AM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	09/29/17 7:23 AM	Reported
75	N026134-001A	SAMP	5	Hexavalent Chromium	09/29/17 7:32 AM	Reported
76	N026134-001AMS	MS	5	Hexavalent Chromium	09/29/17 7:42 AM	Reported
77	CCV-7	CCV	1	Hexavalent Chromium	09/29/17 7:51 AM	Reported
78	CCB-7	CCB	1	Hexavalent Chromium	09/29/17 8:01 AM	Reported

SAMPLE PREPARATION LOG

Sample Preparation

Date Prepared: 9/27/17
Time Prepared: 09:40 PM
Prepared By: MBA

Slope: 98.4%
pH 4: 4.02 @ 25.9°C
7: 6.99 @ 25.9°C
10: 9.98 @ 25.9°C
LL: 6.97 @ 26.2°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: 1470927C
NH4OH + NH4SO4 buffer: 1470921A

6N NaOH: 1470809A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026114-001A	9.39	-	~250 mL	~250 mL		1470921A
2)	2A	9.14	9.34			+2 drops 6N NaOH	
3)	3A	9.13	9.45			+4 "	
4)	4A	9.20	9.43			+3 "	
5)	5A	9.32	-				
6)	6A	9.40	-				
7)	7A	9.35	-				
8)	8A	9.25	9.41			+2 "	
9)	9A	9.43	-				
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 9/28/17
Time Prepared: 2201
Prepared By: MBA

Slope: 97.3%
pH 4: 3.95 @ 21.5°C
7: 7.01 @ 21.4°C
10: 10.02 @ 21.6°C
LL: 6.98 @ 21.9°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CINV-170620A
NH4OH + NH4SO4 eluent: 1470927C
NH4OH + NH4SO4 buffer: 1470921A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026134-001A	9.42	-	~250 mL	~250 mL		
2)	2A	9.40	-				
3)	3A	9.39	-				
4)	4A	9.52	-				
5)	5A	9.59	-				
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

mba 10/7/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 9/5/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2580	1.2987	2.5943	3.9068	5.1811	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-170817H	IWST-170622C

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ICV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2777659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.943	0.20	5.000	0	98.8	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2777660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.191	0.20	0.2000	0	95.2	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.028	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.178	0.20	0.2000	0	89.2	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.029	0.20	10.00	0	100	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.094	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.166	0.20	10.00	0	102	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCV**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.023	0.20	5.000	0	100	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.192	0.20	10.00	0	102	95	105				

Sample ID **CCV-7**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ZZZZZZ**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.096	0.20	10.00	0	101	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **ICB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/5/2017**	SeqNo: **2777661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/28/2017**	SeqNo: **2777673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777696**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118231**
Client ID: **CCB**	Batch ID: **R118231**	TestNo: **EPA 218.6**		Analysis Date: **9/29/2017**	SeqNo: **2777717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/28/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.065	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.065	
Actual RT Window	3.985 - 4.145	
Applied RT Window	3.865 - 4.265	
MB-R118231	N.A.	N.A.
LCS-R118231	4.065	PASS
N026114-001A	N.A.	N.A.
N026114-001AMS	4.006	PASS
N026114-001AMS	4.006	PASS
N026114-001A	N.A.	N.A.
N026114-001AMS	N.A.	N.A.
N026114-003A	4.065	PASS
N026114-003AMS	4.065	PASS
N026114-003ADUP	4.065	PASS
N026153-007C	N.A.	N.A.
N026153-006C	4.048	PASS
N026153-003C	N.A.	N.A.
N026153-004C	4.040	PASS
N026153-007CREP	4.048	PASS
N026153-006CREP	4.048	PASS
N026153-003CREP	N.A.	N.A.
N026153-004C	4.065	PASS
N026153-004CREP	4.065	PASS
N026153-007CREP	N.A.	N.A.
N026114-003AMSD	4.056	PASS
N026114-002A	4.056	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/28/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.065	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.065	
Actual RT Window	3.985 - 4.145	
Applied RT Window	3.865 - 4.265	
N026114-002AMS	4.065	PASS
N026114-004A	4.065	PASS
N026114-004AMS	4.065	PASS
N026114-005A	4.040	PASS
N026114-005AMS	4.048	PASS
N026114-006A	4.048	PASS
N026114-006AMS	4.048	PASS
N026114-007A	4.048	PASS
N026114-007AMS	4.048	PASS
N026114-009A	N.A.	N.A.
N026114-009AMS	4.056	PASS
N026114-008A	4.065	PASS
N026114-008AMS	4.065	PASS
N026134-001A	3.915	PASS
N026134-001AMS	3.915	PASS
N026134-003A	4.031	PASS
N026134-003AMS	4.031	PASS
N026134-005A	N.A.	N.A.
N026134-005AMS	4.065	PASS
N026134-002A	3.890	PASS
N026134-002AMS	3.873	PASS
N026134-004A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 9/28/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.065	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.065	
Actual RT Window	3.985 - 4.145	
Applied RT Window	3.865 - 4.265	
N026134-004AMS	3.656	FAIL
N026134-002A	4.040	PASS
N026134-002AMS	4.023	PASS
N026134-004A	4.015	PASS
N026134-004AMS	4.015	PASS
N026134-001A	4.040	PASS
N026134-001AMS	4.040	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

INITIAL CALIBRATION



RAW DATA

INJECTION LOG: 170905A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	09/05/17 10:35 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/05/17 10:47 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	09/05/17 10:58 AM	Reported
13	MB-R117655	MBLK	1	Hexavalent Chromium	09/05/17 11:08 AM	Reported
14	LCS-R117655	LCS	1	Hexavalent Chromium	09/05/17 11:17 AM	Reported
15	N025742-001A	SAMP	1	Hexavalent Chromium	09/05/17 11:27 AM	Not Reported
16	N025742-002A	SAMP	1	Hexavalent Chromium	09/05/17 11:37 AM	Not Reported
17	N025742-003A	SAMP	1	Hexavalent Chromium	09/05/17 11:46 AM	Not Reported
18	N025742-004A	SAMP	1	Hexavalent Chromium	09/05/17 11:55 AM	Not Reported
19	N025742-005A	SAMP	1	Hexavalent Chromium	09/05/17 12:05 PM	Not Reported
20	N025742-006A	SAMP	1	Hexavalent Chromium	09/05/17 12:14 PM	Not Reported
21	N025742-007A	SAMP	1	Hexavalent Chromium	09/05/17 12:24 PM	Not Reported
22	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 12:33 PM	Not Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	09/05/17 12:43 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	09/05/17 12:52 PM	Reported
25	N025742-001A	SAMP	50	Hexavalent Chromium	09/05/17 1:15 PM	Reported
26	N025742-001AMS	MS	50	Hexavalent Chromium	09/05/17 1:27 PM	Reported
27	N025742-001AMSD	MSD	50	Hexavalent Chromium	09/05/17 1:36 PM	Reported
28	N025742-002A	SAMP	10	Hexavalent Chromium	09/05/17 1:46 PM	Reported
29	N025742-003A	SAMP	50	Hexavalent Chromium	09/05/17 1:55 PM	Reported
30	N025742-003ADUP	DUP	50	Hexavalent Chromium	09/05/17 2:05 PM	Reported
31	N025742-004A	SAMP	50	Hexavalent Chromium	09/05/17 2:14 PM	Reported
32	N025742-005A	SAMP	50	Hexavalent Chromium	09/05/17 2:24 PM	Reported
33	N025742-006A	SAMP	20	Hexavalent Chromium	09/05/17 2:33 PM	Reported
34	CCV-2	CCV	1	Hexavalent Chromium	09/05/17 2:43 PM	Reported
35	CCB-2	CCB	1	Hexavalent Chromium	09/05/17 2:52 PM	Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_170905A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**05/Sep/17 15:39:01**
No. of Injections:	**38**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	ICV,ICV,1,	11	1000	Unknown		09/05/2017 10:35	Finished	ICV @5ppb, IWST-170622D
11	PQL@0.2ppb,CCV2,	12	1000	Unknown		09/05/2017 10:47	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	13	1000	Unknown		09/05/2017 10:58	Finished	ICB R170815A
13	MB-H2O,MBLK,1	14	1000	Unknown		09/05/2017 11:08	Finished	MB R170815A
14	LCS-H2O,LCS,1	15	1000	Unknown		09/05/2017 11:17	Finished	LCS, IWST-170622D
15	N025742-001A,SAMF	16	1000	Unknown		09/05/2017 11:27	Finished	SAMP,10mL
16	N025742-002A,SAMF	17	1000	Unknown		09/05/2017 11:37	Finished	SAMP,10mL
17	N025742-003A,SAMF	18	1000	Unknown		09/05/2017 11:46	Finished	SAMP,10mL
18	N025742-004A,SAMF	19	1000	Unknown		09/05/2017 11:55	Finished	SAMP,10mL
19	N025742-005A,SAMF	20	1000	Unknown		09/05/2017 12:05	Finished	SAMP,10mL
20	N025742-006A,SAMF	21	1000	Unknown		09/05/2017 12:14	Finished	SAMP,10mL
21	N025742-007A,SAMF	22	1000	Unknown		09/05/2017 12:24	Finished	SAMP,10mL
22	BLANK	23	1000	Unknown		09/05/2017 12:33	Finished	BLANK
23	CCV-1,CCV1,1,	24	1000	Unknown		09/05/2017 12:43	Finished	CCV @10ppb, IWST-170622C
24	CCB-1,CCB,1,	25	1000	Unknown		09/05/2017 12:52	Finished	CCB R170815A
25	N025742-001A,SAMF	27	1000	Unknown		09/05/2017 13:15	Finished	MS (5ppb), IWST-170622D,0.1
26	N025742-001AMS,MS	28	1000	Unknown		09/05/2017 13:27	Finished	MSD (5ppb), IWST-170622D,0.
27	N025742-001AMSD,M	29	1000	Unknown		09/05/2017 13:36	Finished	SAMP, 2>10mL
28	N025742-002A,SAMF	30	1000	Unknown		09/05/2017 13:46	Finished	SAMP, 0.2>10mL
29	N025742-003A,SAMF	31	1000	Unknown		09/05/2017 13:55	Finished	SAMP, 10mL
30	N025742-003ADUP,D	32	1000	Unknown		09/05/2017 14:05	Finished	SAMP, 10mL
31	N025742-004A,SAMF	33	1000	Unknown		09/05/2017 14:14	Finished	SAMP, 10mL
32	N025742-005A,SAMF	34	1000	Unknown		09/05/2017 14:24	Finished	SAMP, 0.05>10mL
33	N025742-006A,SAMF	35	1000	Unknown		09/05/2017 14:33	Finished	SAMP, 10mL
34	CCV-2,CCV,1,	36	1000	Unknown		09/05/2017 14:43	Finished	CCV @5ppb, IWST-170622D
35	CCB-2,CCB,1,	37	1000	Unknown		09/05/2017 14:52	Finished	CCB R170815A
36	SHUTDOWN	38	1000	Unknown		09/05/2017 15:01	Finished	
37	Eluent: R170901A	39	1000	Unknown		n.a.	Finished	Eluent
38	PCR: R170905A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

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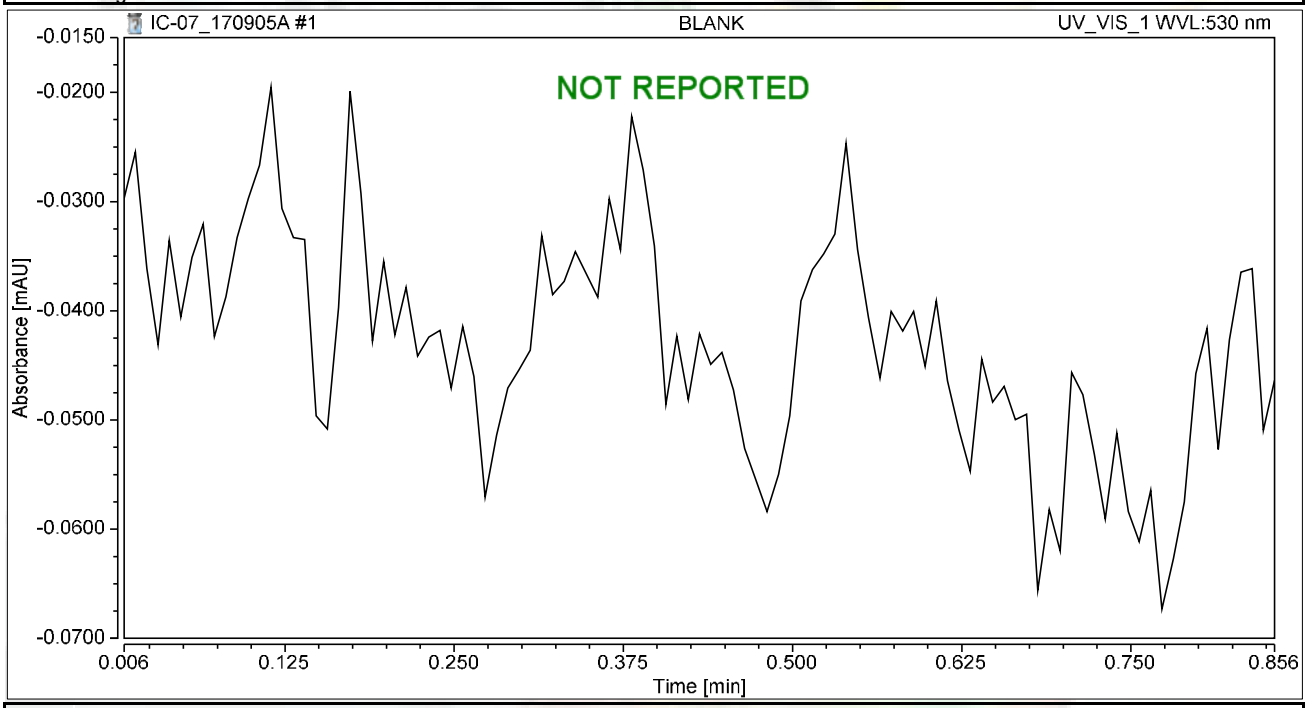
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.85**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 08:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

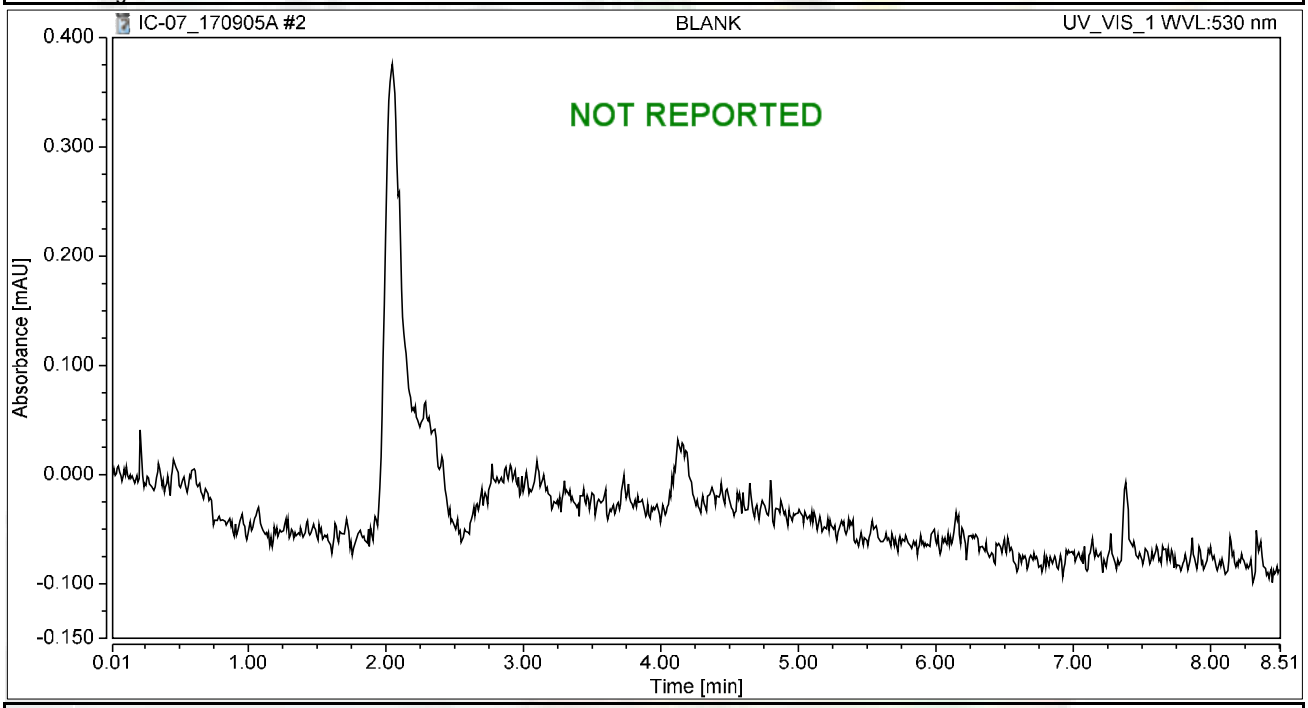
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

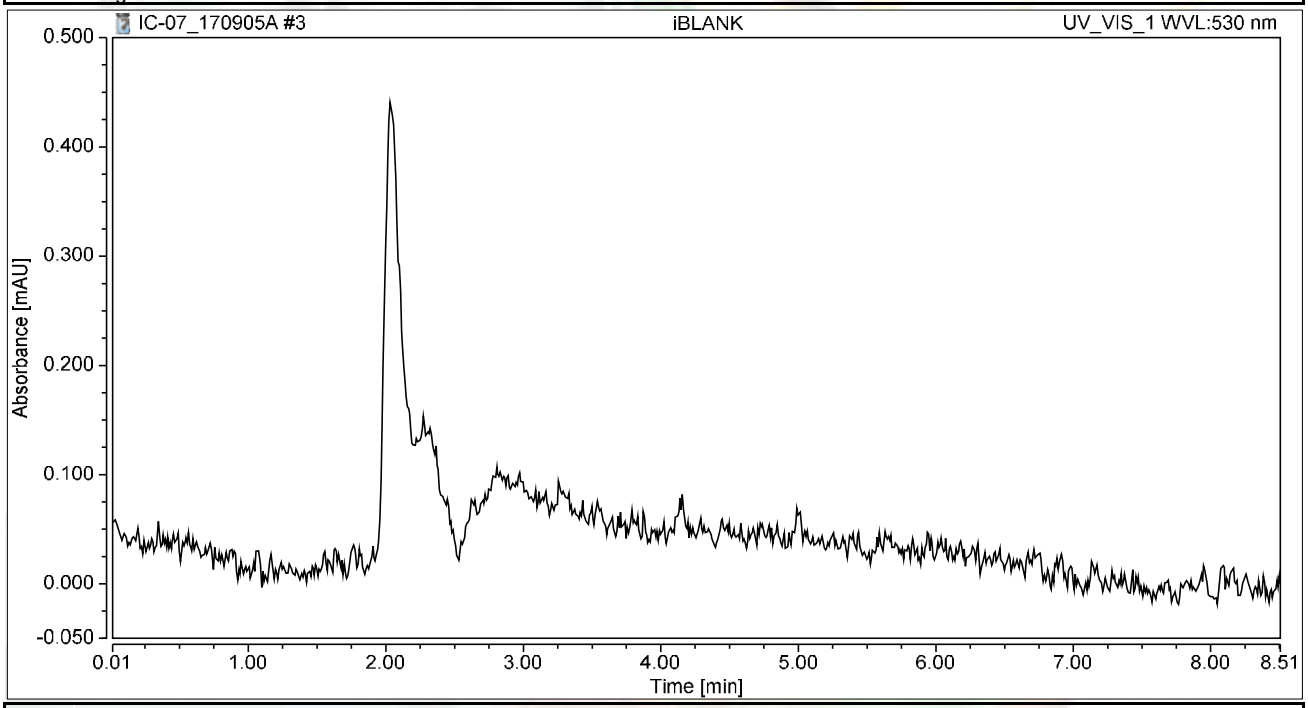
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

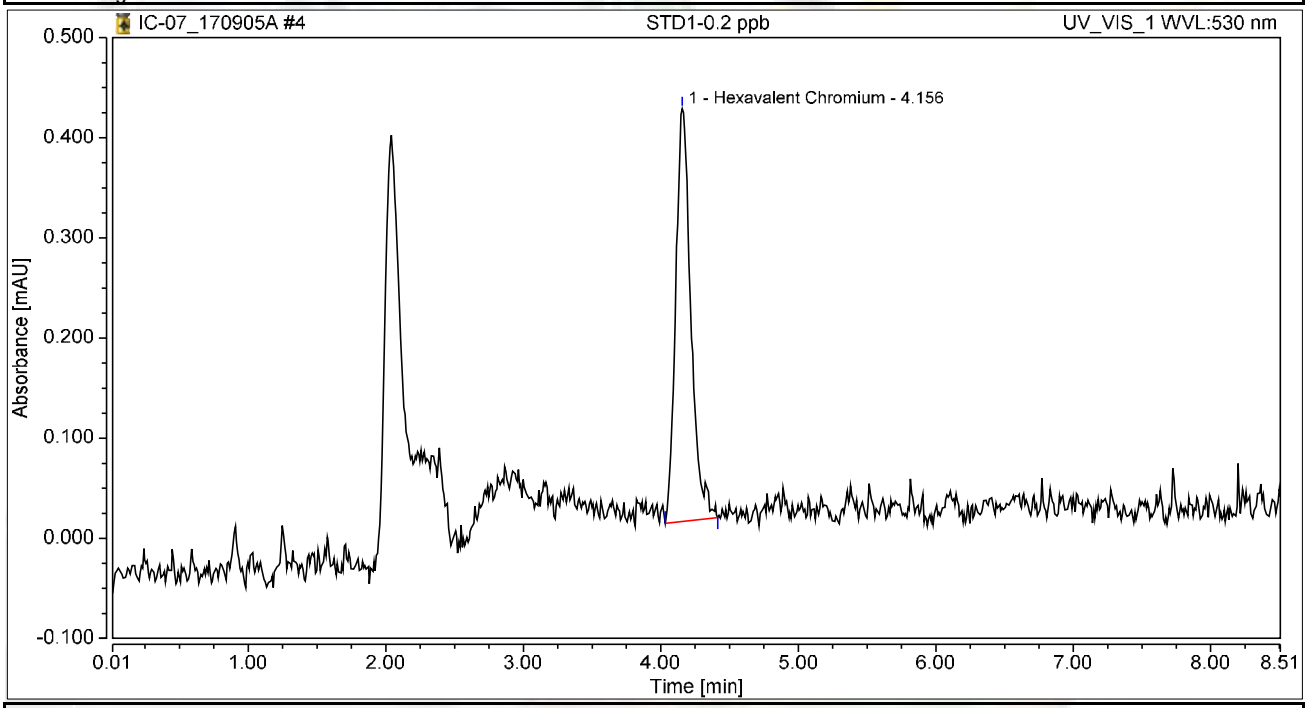
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

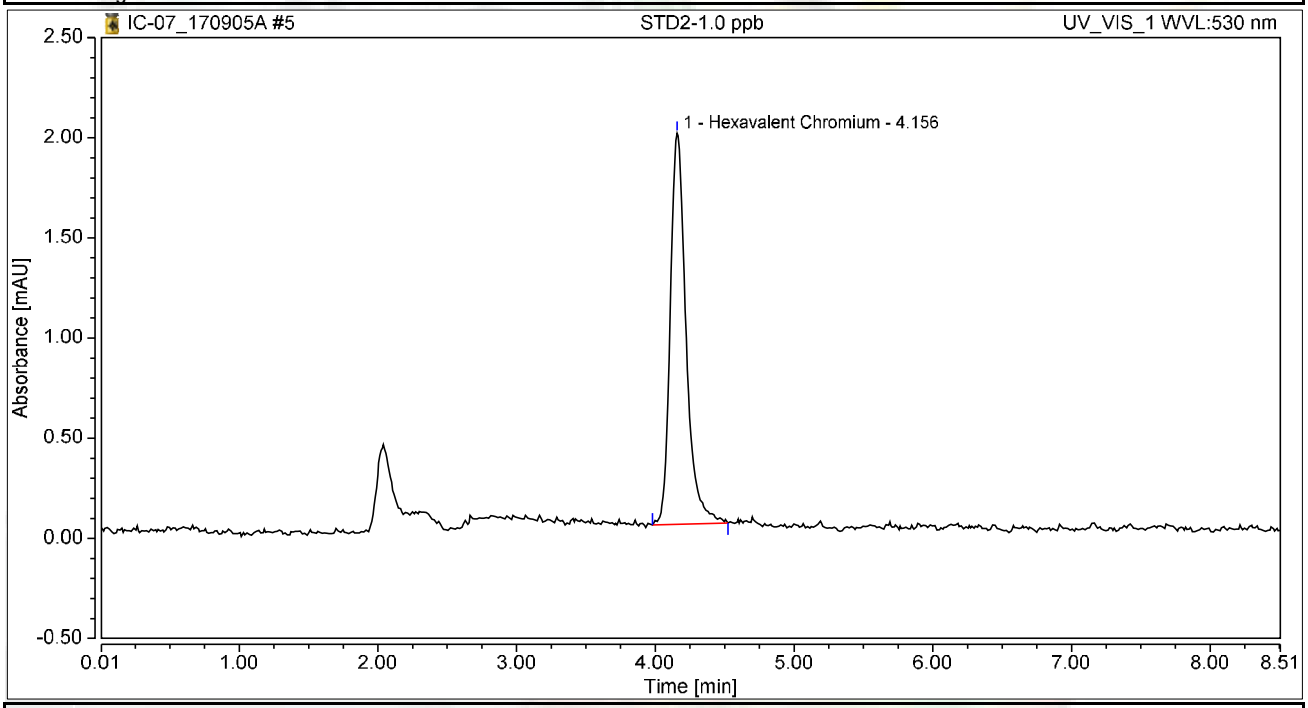
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.053	0.412	100.00	100.00	0.2029
Total:			**0.053**	**0.412**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

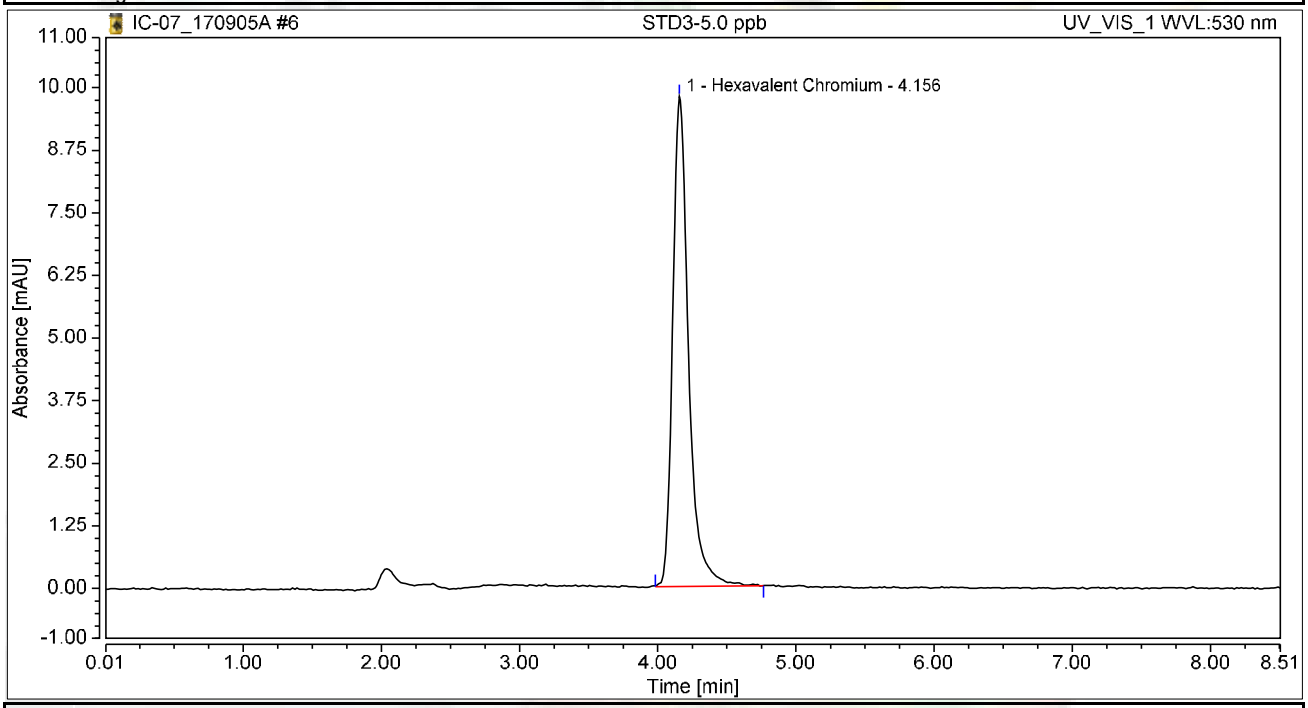
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.258	1.952	100.00	100.00	0.9942
Total:			**0.258**	**1.952**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

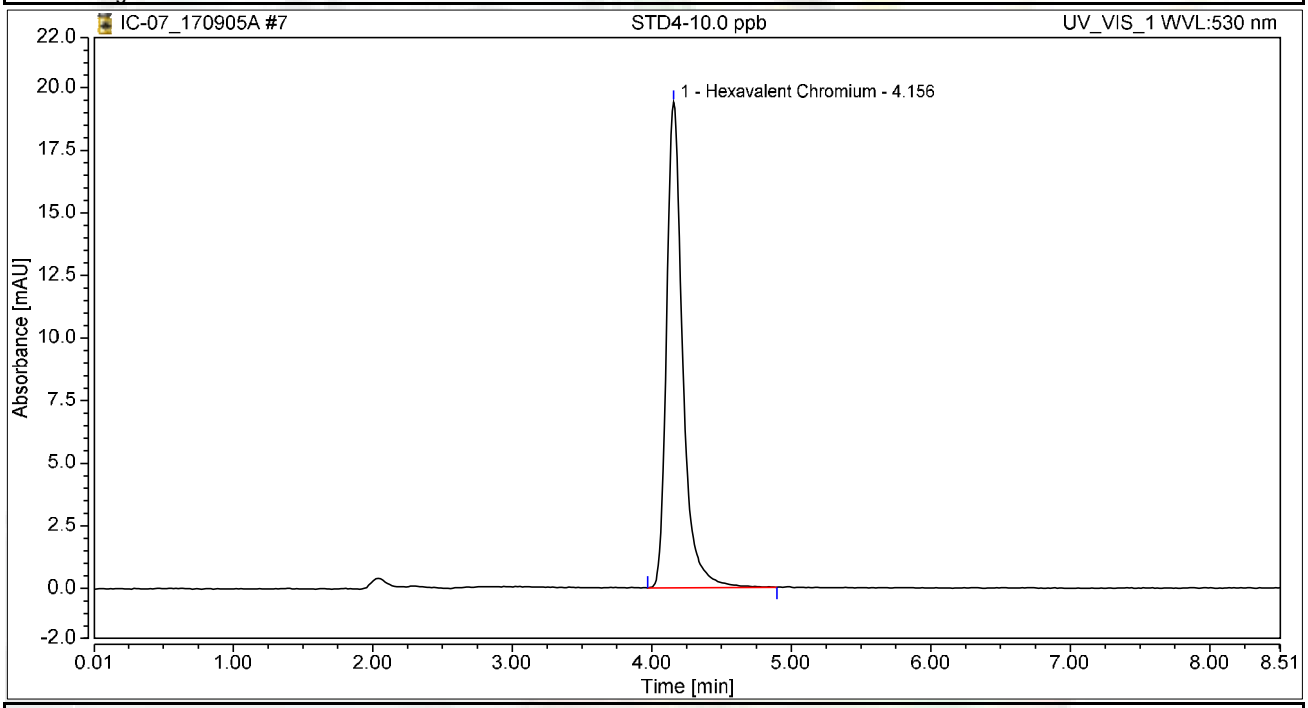
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.299	9.782	100.00	100.00	5.0039
Total:			**1.299**	**9.782**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

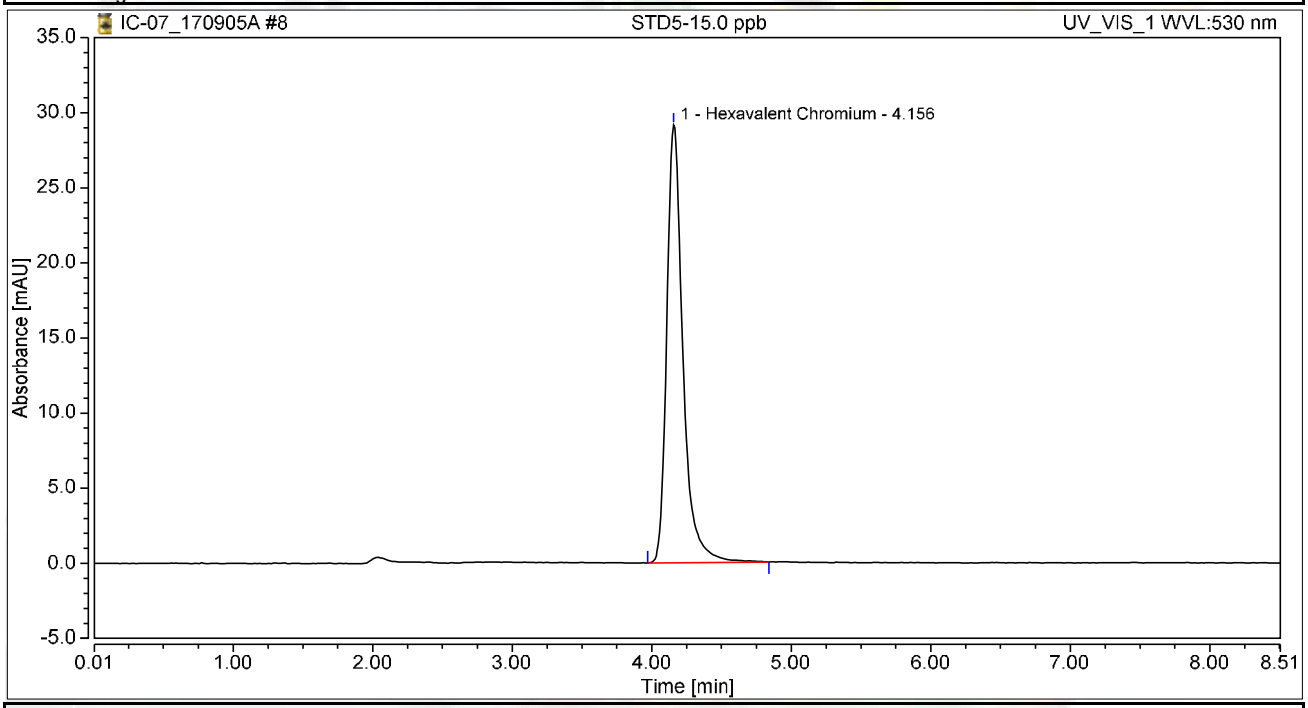
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	2.594	19.389	100.00	100.00	9.9955
Total:			**2.594**	**19.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

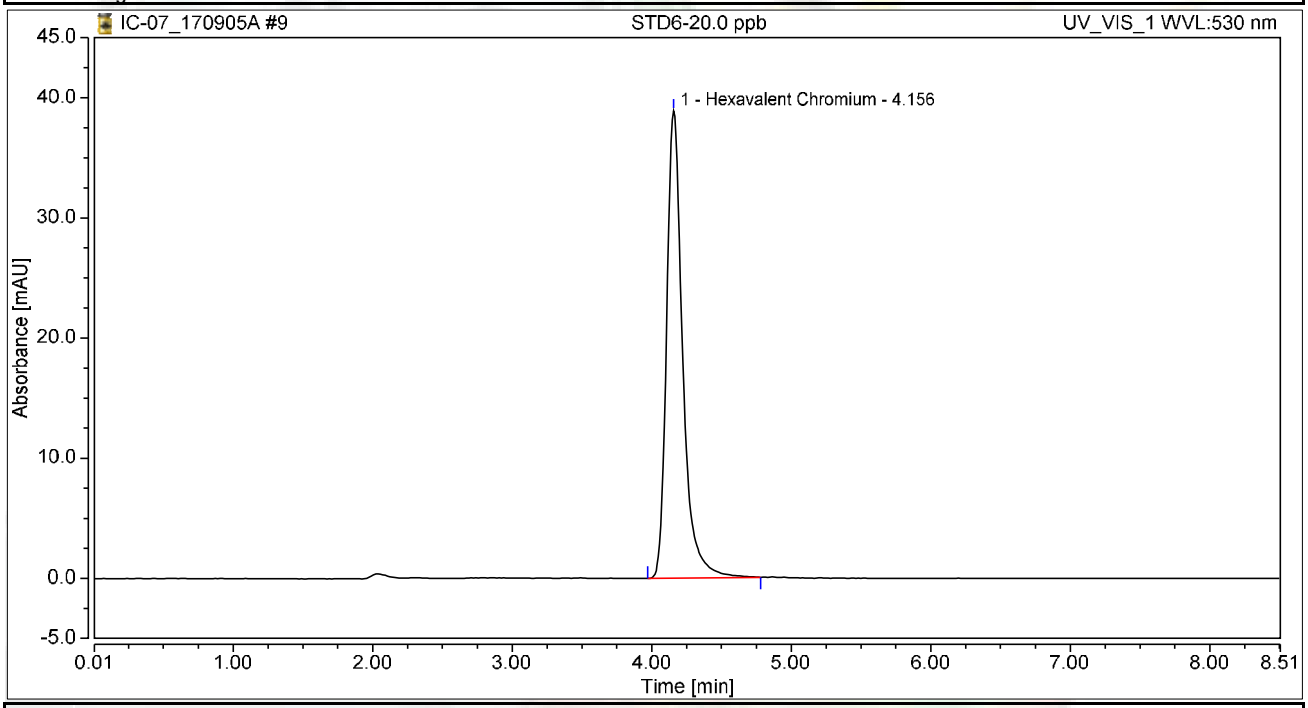
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	3.907	29.134	100.00	100.00	15.0524
Total:			**3.907**	**29.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:25**	*Sample Weight:*	**1.0000**

Chromatogram



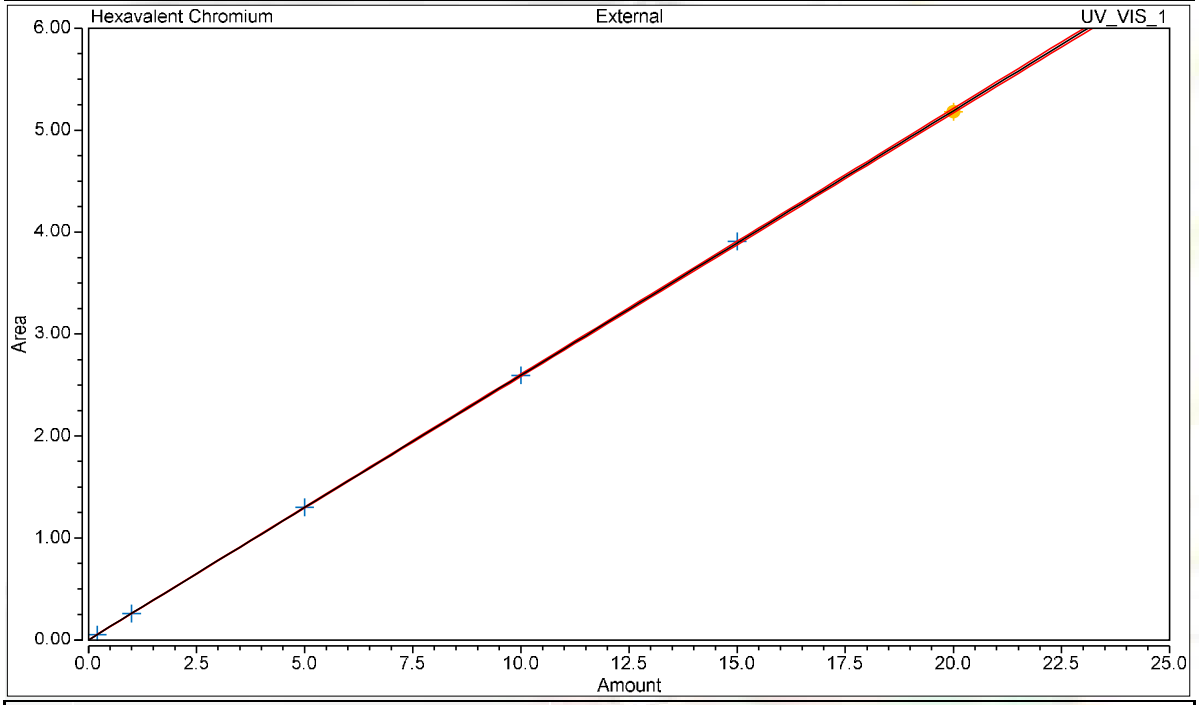
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	5.181	38.869	100.00	100.00	19.9622
Total:			**5.181**	**38.869**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2595
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

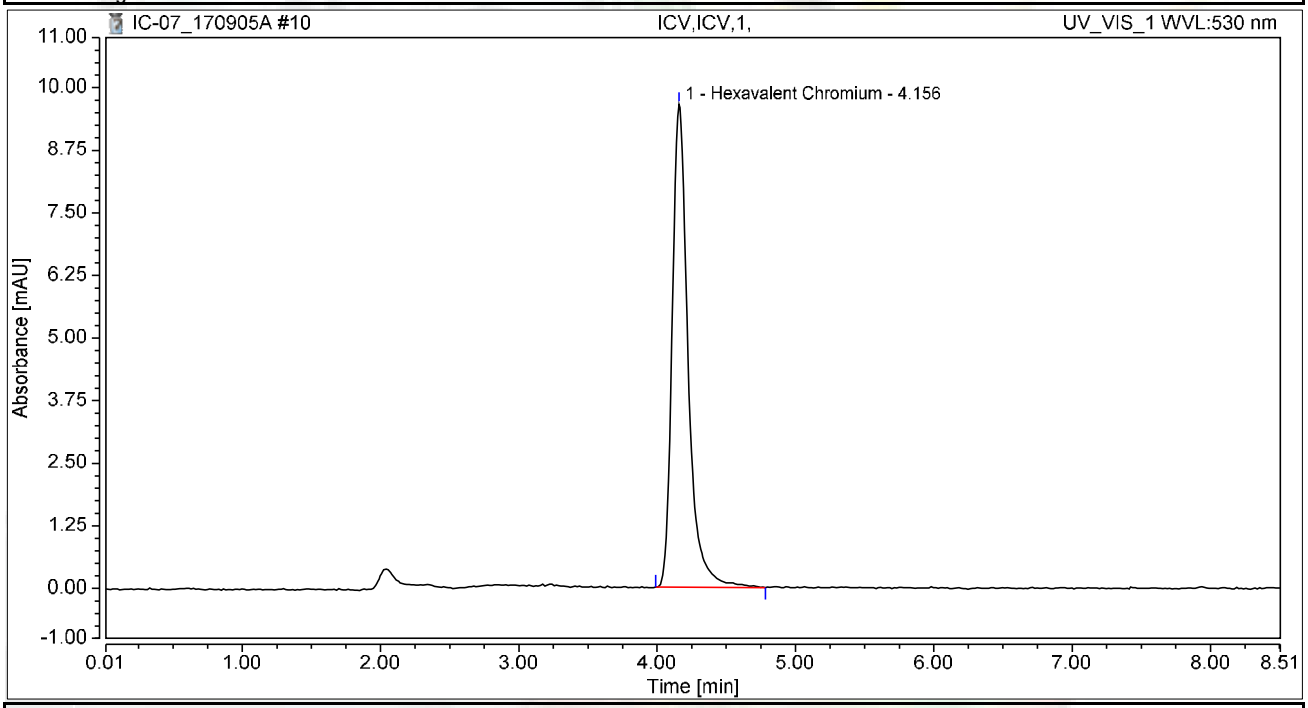
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.412
5	STD2-1.0 ppb	02	1.0000	0.2580	0.258	1.952
6	STD3-5.0 ppb	03	5.0000	1.2987	1.299	9.782
7	STD4-10.0 ppb	04	10.0000	2.5943	2.594	19.389
8	STD5-15.0 ppb	05	15.0000	3.9068	3.907	29.134
9	STD6-20.0 ppb	06	20.0000	5.1811	5.181	38.869

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

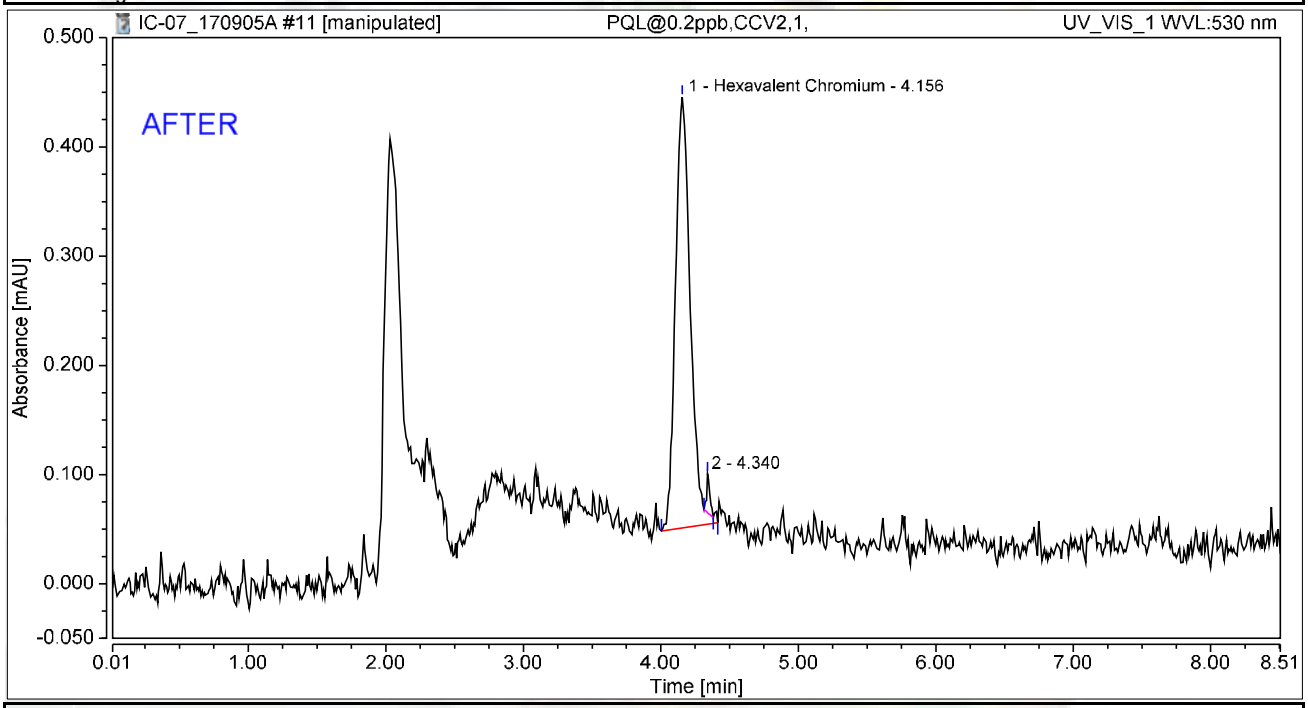
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.283	9.638	100.00	100.00	4.9425
Total:			**1.283**	**9.638**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.049	0.394	97.99	91.72	0.1905
2		4.340	0.001	0.036	2.01	8.28	n.a.
Total:			**0.050**	**0.430**	**100.00**	**100.00**	

rba 9/7/2017

Reviewed by: Nancy 9/12/2017

My first report/Integration

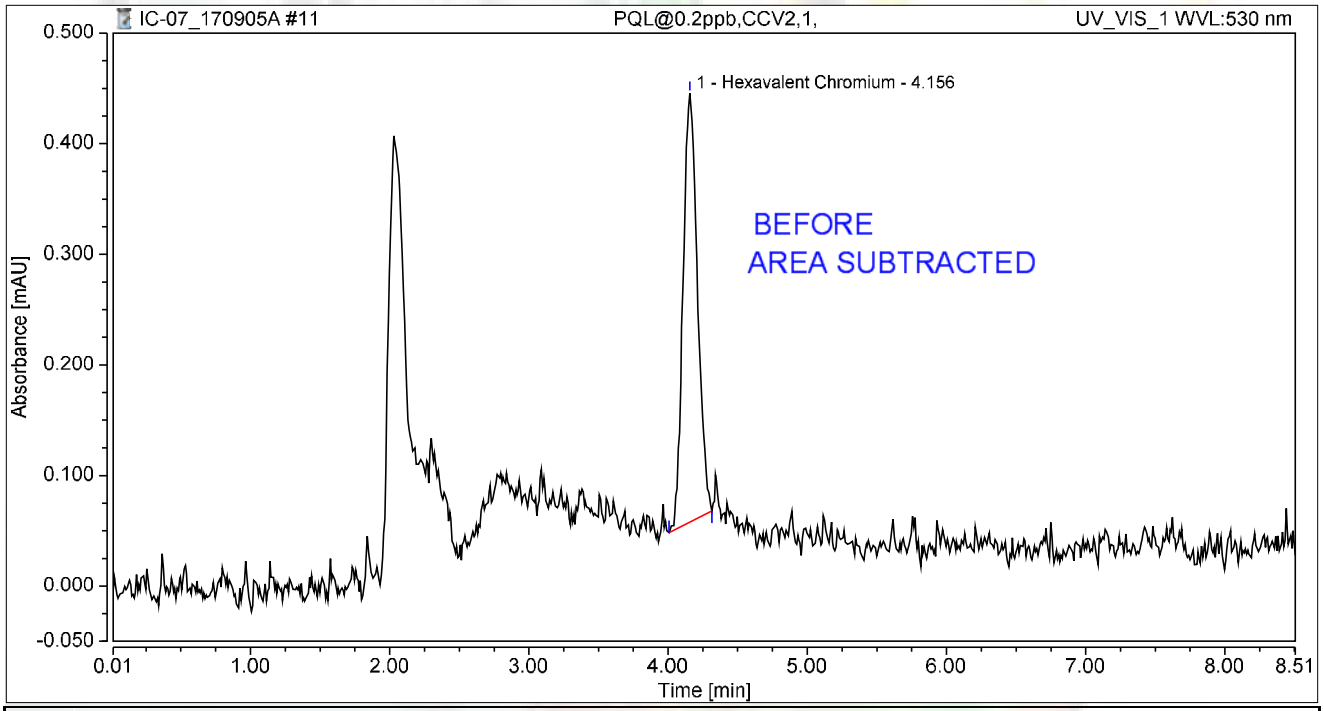
Chromeleon (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	0.046	0.387	100.00	100.00	0.1788
Total:			**0.046**	**0.387**	**100.00**	**100.00**	

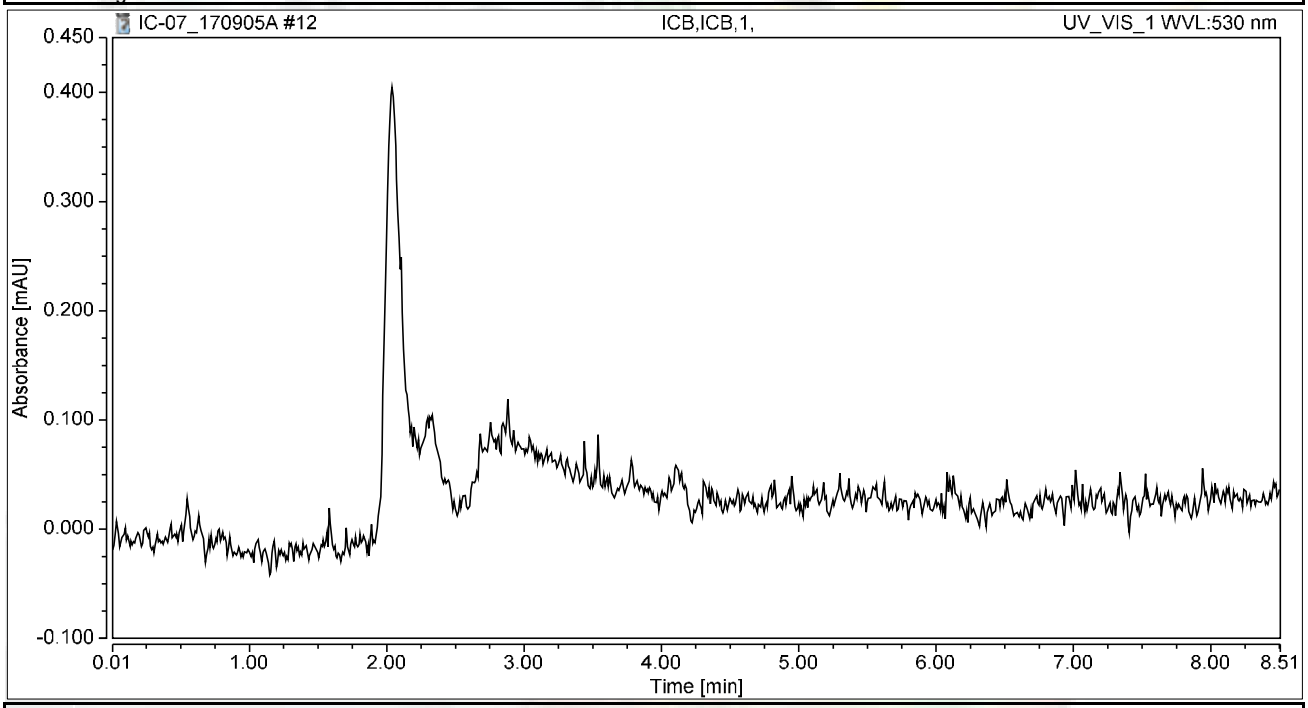
rba 9/7/2017

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**05/Sep/17 10:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 8:53 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	09/05/17 9:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	09/05/17 9:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:36 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:47 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 9:57 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:06 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:16 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	09/05/17 10:25 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:00 PM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	09/28/17 9:11 PM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	09/28/17 9:21 PM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	09/28/17 9:30 PM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	09/28/17 9:39 PM	Reported
15	MB-R118231	MBLK	1	Hexavalent Chromium	09/28/17 9:49 PM	Reported
16	LCS-R118231	LCS	1	Hexavalent Chromium	09/28/17 9:58 PM	Reported
17	N026114-001A	SAMP	5	Hexavalent Chromium	09/28/17 10:08 PM	Reported
18	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:17 PM	Reported
19	N026114-001AMS	MS	5	Hexavalent Chromium	09/28/17 10:27 PM	Reported
20	N026114-001A	SAMP	1	Hexavalent Chromium	09/28/17 10:38 PM	Not Reported
21	N026114-001AMS	MS	1	Hexavalent Chromium	09/28/17 10:48 PM	Not Reported
22	N026114-003A	SAMP	100	Hexavalent Chromium	09/28/17 10:57 PM	Reported
23	N026114-003AMS	MS	100	Hexavalent Chromium	09/28/17 11:06 PM	Reported
24	N026114-003ADUP	DUP	100	Hexavalent Chromium	09/28/17 11:16 PM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	09/28/17 11:25 PM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	09/28/17 11:35 PM	Reported
27	N026153-007C	SAMP	1	Hexavalent Chromium	09/28/17 11:45 PM	Reported
28	N026153-006C	SAMP	1	Hexavalent Chromium	09/28/17 11:56 PM	Reported
29	N026153-003C	SAMP	1	Hexavalent Chromium	09/29/17 12:06 AM	Reported
30	N026153-004C	SAMP	1	Hexavalent Chromium	09/29/17 12:15 AM	Not Reported
31	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 12:25 AM	Not Reported
32	N026153-006CREP	DUP	1	Hexavalent Chromium	09/29/17 12:34 AM	Reported
33	N026153-003CREP	DUP	1	Hexavalent Chromium	09/29/17 12:44 AM	Reported
34	N026153-004C	SAMP	100	Hexavalent Chromium	09/29/17 12:53 AM	Reported
35	N026153-004CREP	DUP	100	Hexavalent Chromium	09/29/17 1:02 AM	Reported
36	N026153-007CREP	DUP	1	Hexavalent Chromium	09/29/17 1:12 AM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	09/29/17 1:21 AM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:31 AM	Not Reported
39	CCB-3	CCB	1	Hexavalent Chromium	09/29/17 1:48 AM	Reported
40	N026114-003AMSD	MSD	100	Hexavalent Chromium	09/29/17 1:59 AM	Reported
41	N026114-002A	SAMP	20	Hexavalent Chromium	09/29/17 2:08 AM	Reported
42	N026114-002AMS	MS	20	Hexavalent Chromium	09/29/17 2:18 AM	Reported

INJECTION LOG: 170928A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026114-004A	SAMP	50	Hexavalent Chromium	09/29/17 2:28 AM	Reported
44	N026114-004AMS	MS	50	Hexavalent Chromium	09/29/17 2:39 AM	Reported
45	N026114-005A	SAMP	1	Hexavalent Chromium	09/29/17 2:49 AM	Reported
46	N026114-005AMS	MS	1	Hexavalent Chromium	09/29/17 2:58 AM	Reported
47	N026114-006A	SAMP	1	Hexavalent Chromium	09/29/17 3:07 AM	Reported
48	N026114-006AMS	MS	1	Hexavalent Chromium	09/29/17 3:17 AM	Reported
49	N026114-007A	SAMP	1	Hexavalent Chromium	09/29/17 3:26 AM	Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	09/29/17 3:36 AM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	09/29/17 3:45 AM	Reported
52	N026114-007AMS	MS	1	Hexavalent Chromium	09/29/17 3:55 AM	Reported
53	N026114-009A	SAMP	1	Hexavalent Chromium	09/29/17 4:04 AM	Reported
54	N026114-009AMS	MS	1	Hexavalent Chromium	09/29/17 4:14 AM	Reported
55	N026114-008A	SAMP	2000	Hexavalent Chromium	09/29/17 4:23 AM	Reported
56	N026114-008AMS	MS	2000	Hexavalent Chromium	09/29/17 4:33 AM	Reported
57	N026134-001A	SAMP	1	Hexavalent Chromium	09/29/17 4:42 AM	Not Reported
58	N026134-001AMS	MS	1	Hexavalent Chromium	09/29/17 4:52 AM	Not Reported
59	N026134-003A	SAMP	5	Hexavalent Chromium	09/29/17 5:01 AM	Reported
60	N026134-003AMS	MS	5	Hexavalent Chromium	09/29/17 5:10 AM	Reported
61	N026134-005A	SAMP	1	Hexavalent Chromium	09/29/17 5:20 AM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	09/29/17 5:29 AM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	09/29/17 5:39 AM	Reported
64	N026134-005AMS	MS	1	Hexavalent Chromium	09/29/17 5:48 AM	Reported
65	N026134-002A	SAMP	1	Hexavalent Chromium	09/29/17 5:58 AM	NotReported
66	N026134-002AMS	MS	1	Hexavalent Chromium	09/29/17 6:07 AM	NotReported
67	N026134-004A	SAMP	1	Hexavalent Chromium	09/29/17 6:17 AM	NotReported
68	N026134-004AMS	MS	1	Hexavalent Chromium	09/29/17 6:26 AM	NotReported
69	N026134-002A	SAMP	5	Hexavalent Chromium	09/29/17 6:36 AM	~~Not~~ Reported
70	N026134-002AMS	MS	5	Hexavalent Chromium	09/29/17 6:45 AM	~~Not~~ Reported
71	N026134-004A	SAMP	5	Hexavalent Chromium	09/29/17 6:55 AM	~~Not~~ Reported
72	N026134-004AMS	MS	5	Hexavalent Chromium	09/29/17 7:04 AM	~~Not~~ Reported
73	CCV-6	CCV1	1	Hexavalent Chromium	09/29/17 7:13 AM	Reported
74	CCB-6	CCB	1	Hexavalent Chromium	09/29/17 7:23 AM	Reported
75	N026134-001A	SAMP	5	Hexavalent Chromium	09/29/17 7:32 AM	Reported
76	N026134-001AMS	MS	5	Hexavalent Chromium	09/29/17 7:42 AM	Reported
77	CCV-7	CCV	1	Hexavalent Chromium	09/29/17 7:51 AM	Reported
78	CCB-7	CCB	1	Hexavalent Chromium	09/29/17 8:01 AM	Reported

rba 10/5/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_170928A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**29/Sep/17 08:31:32**
No. of Injections:	**81**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		09/05/2017 08:53	Finished	BLANK
2	BLANK	2	1000	Unknown		09/05/2017 09:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		09/05/2017 09:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	09/05/2017 09:36	Finished	0.2 ppb, IWST-170622C
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	09/05/2017 09:47	Finished	1.0 ppb, IWST-170622C
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	09/05/2017 09:57	Finished	5.0 ppb, IWST-170622C
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	09/05/2017 10:06	Finished	10 ppb, IWST-170622C
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	09/05/2017 10:16	Finished	15 ppb, IWST-170622C
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	09/05/2017 10:25	Finished	20 ppb, IWST-170622C
10	BLANK	1	1000	Unknown		09/28/2017 21:00	Finished	BLANK
11	BLANK	2	1000	Unknown		09/28/2017 21:11	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		09/28/2017 21:21	Finished	CCV @5ppb, IWST-170622D
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		09/28/2017 21:30	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		09/28/2017 21:39	Finished	CCB R170912A
15	MB-H2O,MBLK,1	6	1000	Unknown		09/28/2017 21:49	Finished	MB R170912A
16	LCS-H2O,LCS,1	7	1000	Unknown		09/28/2017 21:58	Finished	LCS, IWST-170622D
17	N026114-001A,SAMP	8	1000	Unknown		09/28/2017 22:08	Finished	SAMP,2>10mL
18	N026114-001AMS,MS	9	1000	Unknown		09/28/2017 22:17	Finished	MS (5ppb), IWST-170622D,2>1
19	N026114-001AMS,MS	10	1000	Unknown		09/28/2017 22:27	Finished	MS (1ppb), IWST-170622D,2>1
20	N026114-001A,SAMP	11	1000	Unknown		09/28/2017 22:38	Finished	SAMP,10mL
21	N026114-001AMS,MS	12	1000	Unknown		09/28/2017 22:48	Finished	MS (1ppb), IWST-170622D,10
22	N026114-003A,SAMP	13	1000	Unknown		09/28/2017 22:57	Finished	SAMP,0.1>10mL
23	N026114-003AMS,MS	14	1000	Unknown		09/28/2017 23:06	Finished	MS (5ppb), IWST-170622D,0.1
24	N026114-003ADUP,D	15	1000	Unknown		09/28/2017 23:16	Finished	DUP,0.1>10mL
25	CCV-2,CCV1,1,	16	1000	Unknown		09/28/2017 23:25	Finished	CCV @10ppb, IWST-170622C
26	CCB-2,CCB,1,	17	1000	Unknown		09/28/2017 23:35	Finished	CCB R170921A
27	N026153-007C,SAMP	19	1000	Unknown		09/28/2017 23:45	Finished	SAMP,10mL
28	N026153-006C,SAMP	20	1000	Unknown		09/28/2017 23:56	Finished	SAMP,10mL
29	N026153-003C,SAMP	21	1000	Unknown		09/29/2017 00:06	Finished	SAMP,10mL
30	N026153-004C,SAMP	22	1000	Unknown		09/29/2017 00:15	Finished	SAMP,10mL
31	N026153-007CREP,D	23	1000	Unknown		09/29/2017 00:25	Finished	REP,10mL
32	N026153-006CREP,D	24	1000	Unknown		09/29/2017 00:34	Finished	REP,10mL
33	N026153-003CREP,D	25	1000	Unknown		09/29/2017 00:44	Finished	REP,10mL
34	N026153-004C,SAMP	26	1000	Unknown		09/29/2017 00:53	Finished	SAMP,0.1>10mL
35	N026153-004CREP,D	27	1000	Unknown		09/29/2017 01:02	Finished	REP,0.1>10mL
36	N026153-007CREP,D	28	1000	Unknown		09/29/2017 01:12	Finished	REP,10mL
37	CCV-3,CCV,1,	29	1000	Unknown		09/29/2017 01:21	Finished	CCV @5ppb, IWST-170622C
38	CCB-3,CCB,1,	30	1000	Unknown		09/29/2017 01:31	Finished	CCB R170921A
39	CCB-3,CCB,1,	31	1000	Unknown		09/29/2017 01:48	Finished	CCB R170921A
40	N026114-003AMSD,M	32	1000	Unknown		09/29/2017 01:59	Finished	MSD (5ppb), IWST-170622D,0.
41	N026114-002A,SAMP	33	1000	Unknown		09/29/2017 02:08	Finished	SAMP,0.5>10mL
42	N026114-002AMS,MS	34	1000	Unknown		09/29/2017 02:18	Finished	MS (5ppb), IWST-170622D,0.5
43	N026114-004A,SAMP	1	1000	Unknown		09/29/2017 02:28	Finished	SAMP,0.2>10mL
44	N026114-004AMS,MS	2	1000	Unknown		09/29/2017 02:39	Finished	MS (5ppb), IWST-170622D,0.2
45	N026114-005A,SAMP	3	1000	Unknown		09/29/2017 02:49	Finished	SAMP,10mL
46	N026114-005AMS,MS	4	1000	Unknown		09/29/2017 02:58	Finished	MS (1ppb), IWST-170622D,10
47	N026114-006A,SAMP	5	1000	Unknown		09/29/2017 03:07	Finished	SAMP,10mL
48	N026114-006AMS,MS	6	1000	Unknown		09/29/2017 03:17	Finished	MS (1ppb), IWST-170622D,10
49	N026114-007A,SAMP	7	1000	Unknown		09/29/2017 03:26	Finished	SAMP,10mL
50	CCV-4,CCV1,1,	8	1000	Unknown		09/29/2017 03:36	Finished	CCV @10ppb, IWST-170622C
51	CCB-4,CCB,1,	9	1000	Unknown		09/29/2017 03:45	Finished	CCB R170921A
52	N026114-007AMS,MS	10	1000	Unknown		09/29/2017 03:55	Finished	MS (1ppb), IWST-170622D,10
53	N026114-009A,SAMP	11	1000	Unknown		09/29/2017 04:04	Finished	SAMP,10mL
54	N026114-009AMS,MS	12	1000	Unknown		09/29/2017 04:14	Finished	MS (1ppb), IWST-170622D,10
55	N026114-008A,SAMP	13	1000	Unknown		09/29/2017 04:23	Finished	SAMP,0.005>10mL
56	N026114-008AMS,MS	14	1000	Unknown		09/29/2017 04:33	Finished	MS (5ppb), IWST-170622D,0.0
57	N026134-001A,SAMP	15	1000	Unknown		09/29/2017 04:42	Finished	SAMP,10mL
58	N026134-001AMS,MS	16	1000	Unknown		09/29/2017 04:52	Finished	MS (5ppb), IWST-170622D,10
59	N026134-003A,SAMP	17	1000	Unknown		09/29/2017 05:01	Finished	SAMP,2>10mL
60	N026134-003AMS,MS	18	1000	Unknown		09/29/2017 05:10	Finished	MS (5ppb), IWST-170622D,2>1

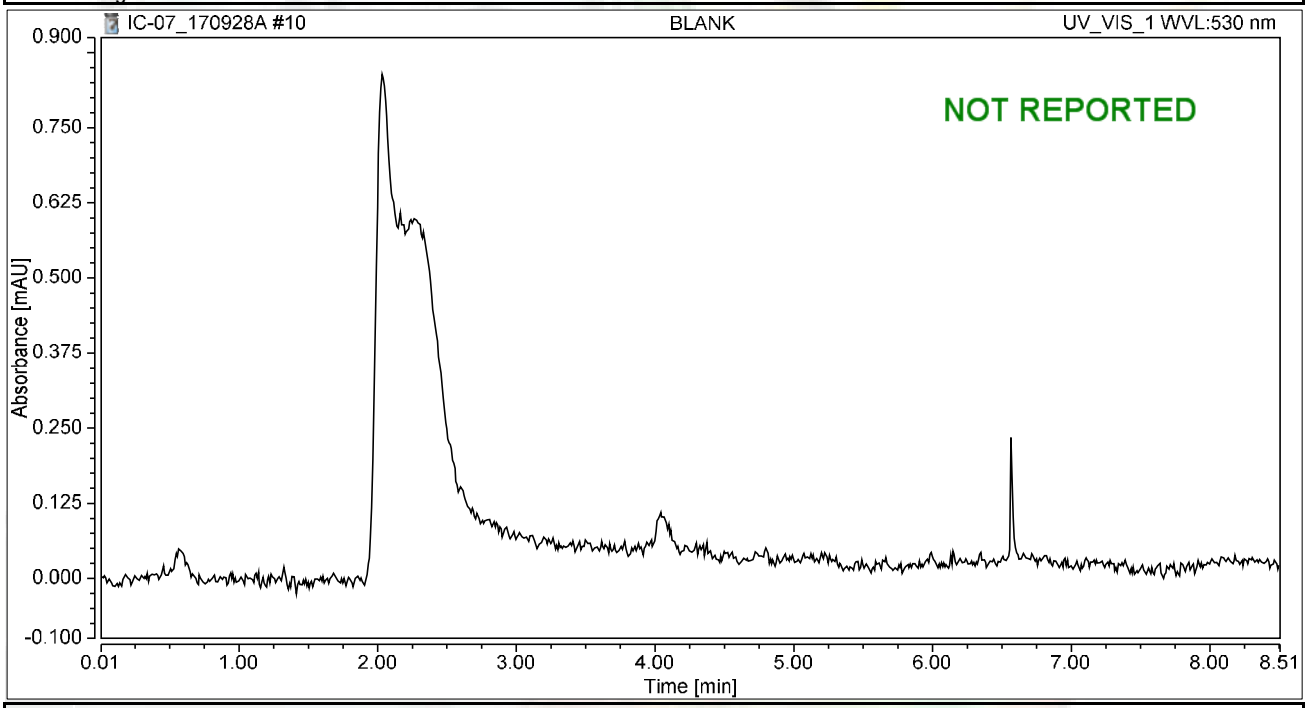
61	N026134-005A,SAMP	19	1000	Unknown		09/29/2017 05:20	Finished	SAMP,10mL
62	CCV-5,CCV,1,	20	1000	Unknown		09/29/2017 05:29	Finished	CCV @5ppb, IWST-170622C
63	CCB-5,CCB,1,	21	1000	Unknown		09/29/2017 05:39	Finished	CCB R170921A
64	N026134-005AMS,MS	22	1000	Unknown		09/29/2017 05:48	Finished	MS (1ppb), IWST-170622D,10
65	N026134-002A,SAMP	23	1000	Unknown		09/29/2017 05:58	Finished	SAMP,10mL
66	N026134-002AMS,MS	24	1000	Unknown		09/29/2017 06:07	Finished	MS (1ppb), IWST-170622D,10
67	N026134-004A,SAMP	25	1000	Unknown		09/29/2017 06:17	Finished	SAMP,10mL
68	N026134-004AMS,MS	26	1000	Unknown		09/29/2017 06:26	Finished	MS (1ppb), IWST-170622D,10
69	N026134-002A,SAMP	27	1000	Unknown		09/29/2017 06:36	Finished	SAMP,2>10mL
70	N026134-002AMS,MS	28	1000	Unknown		09/29/2017 06:45	Finished	MS (1ppb), IWST-170622D,2>1
71	N026134-004A,SAMP	29	1000	Unknown		09/29/2017 06:55	Finished	SAMP,2>10mL
72	N026134-004AMS,MS	30	1000	Unknown		09/29/2017 07:04	Finished	MS (1ppb), IWST-170622D,2>1
73	CCV-6,CCV1,1,	31	1000	Unknown		09/29/2017 07:13	Finished	CCV @10ppb, IWST-170622C
74	CCB-6,CCB,1,	32	1000	Unknown		09/29/2017 07:23	Finished	CCB R170921A
75	N026134-001A,SAMP	33	1000	Unknown		09/29/2017 07:32	Finished	SAMP,2>10mL
76	N026134-001AMS,MS	34	1000	Unknown		09/29/2017 07:42	Finished	MS (5ppb), IWST-170622D,2>1
77	CCV-7,CCV,1,	35	1000	Unknown		09/29/2017 07:51	Finished	CCV @10ppb, IWST-170622C
78	CCB-7,CCB,1,	36	1000	Unknown		09/29/2017 08:01	Finished	CCB R170921A
79	SHUTDOWN	37	1000	Unknown		09/29/2017 08:10	Finished	
80	Eluent: R170927C	38	1000	Unknown		n.a.	Finished	Eluent
81	PCR: R170926A	39	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

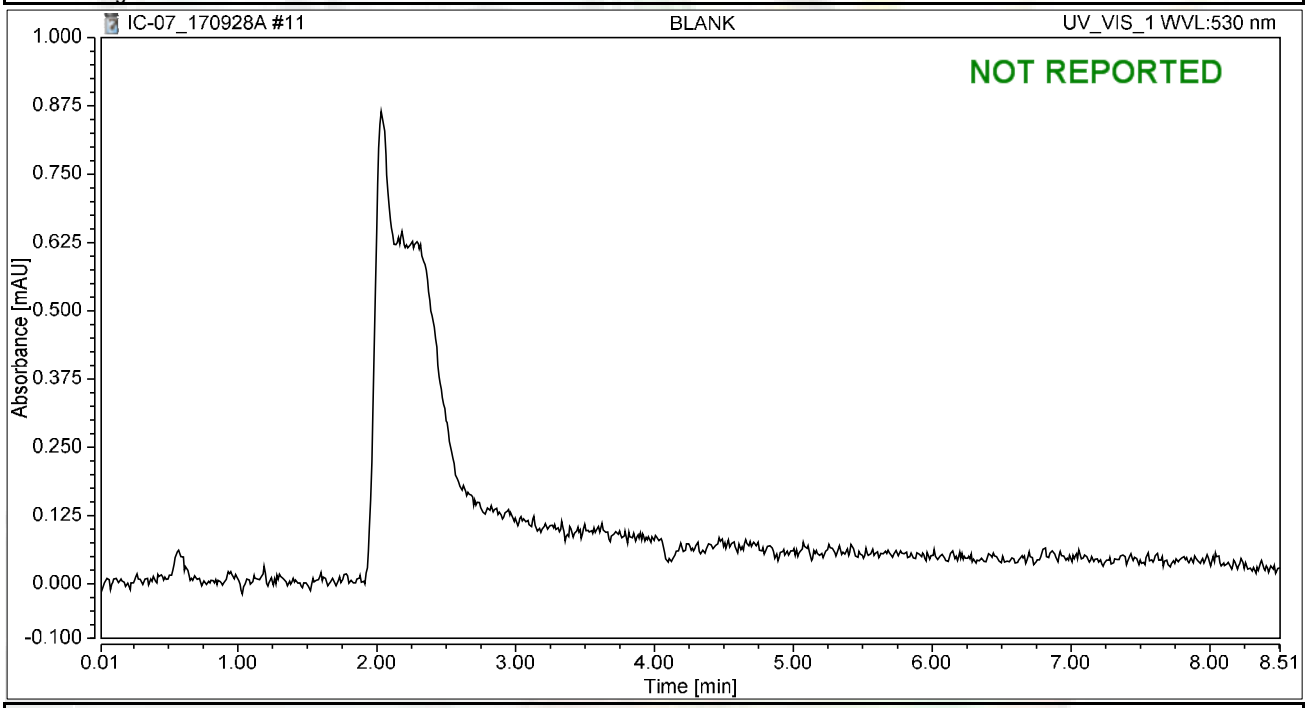
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

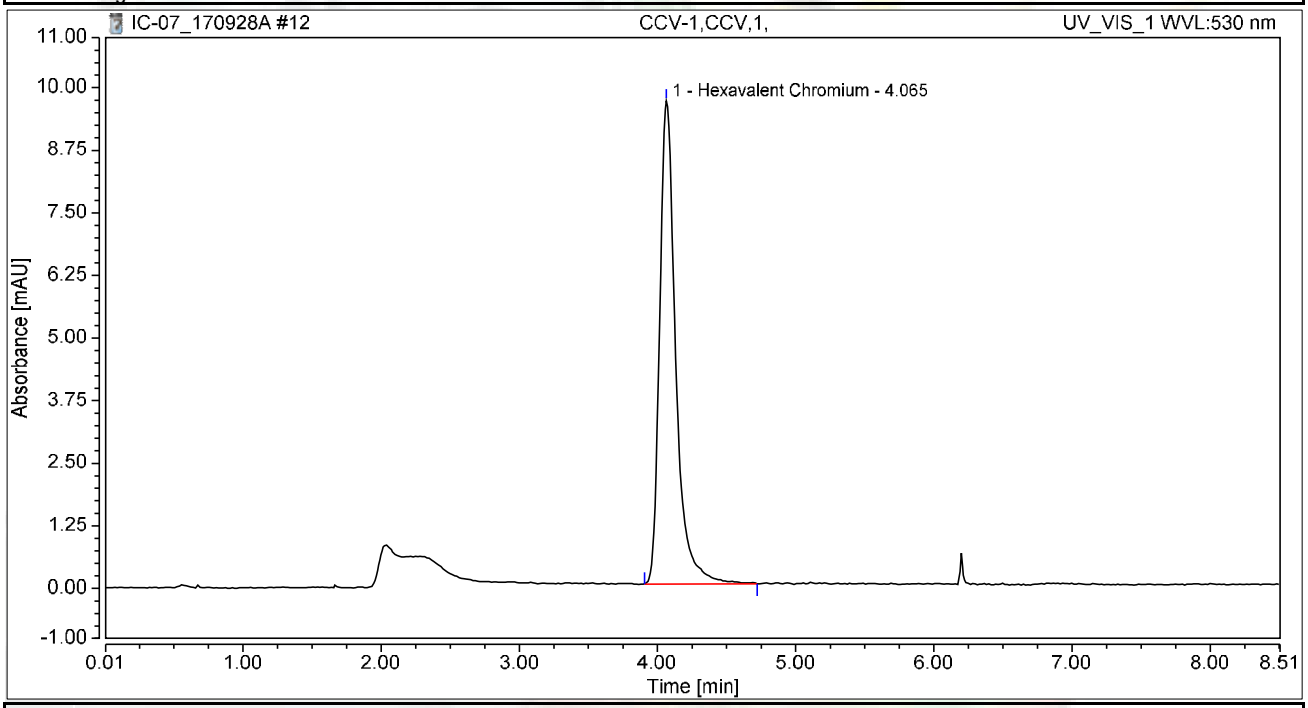
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

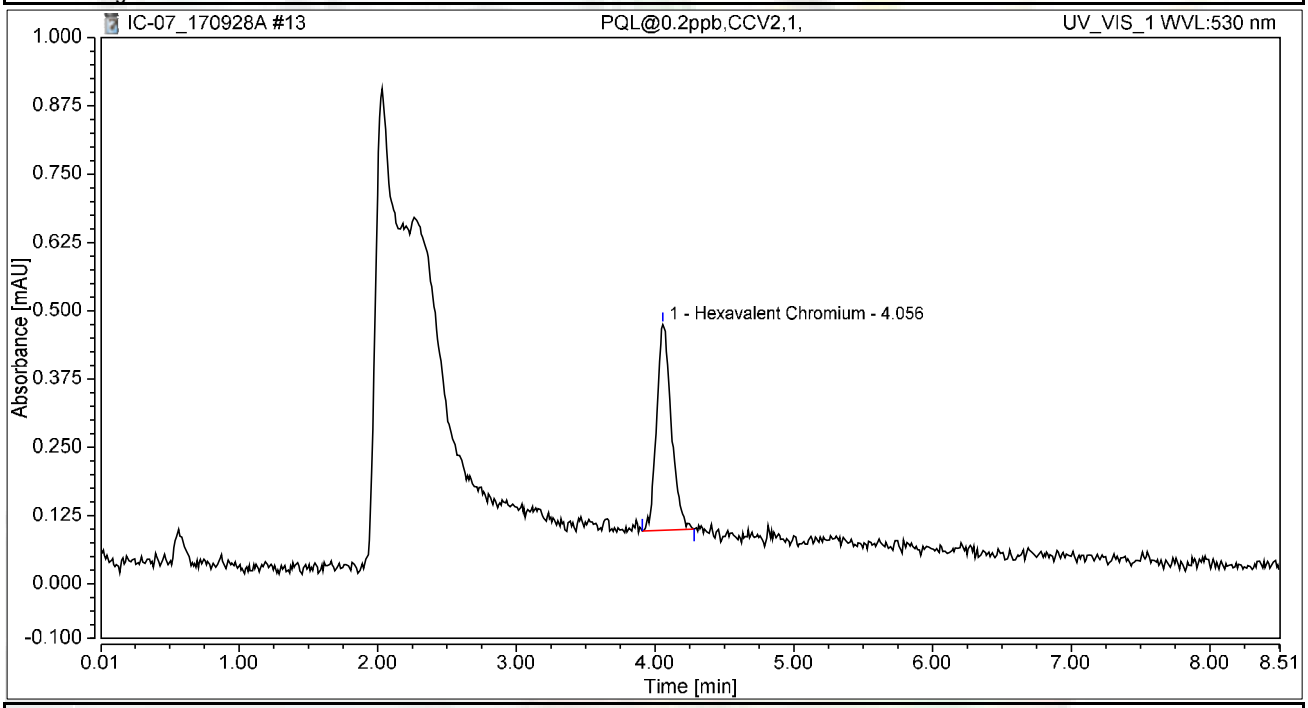
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.305	9.648	100.00	100.00	5.0275
Total:			**1.305**	**9.648**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

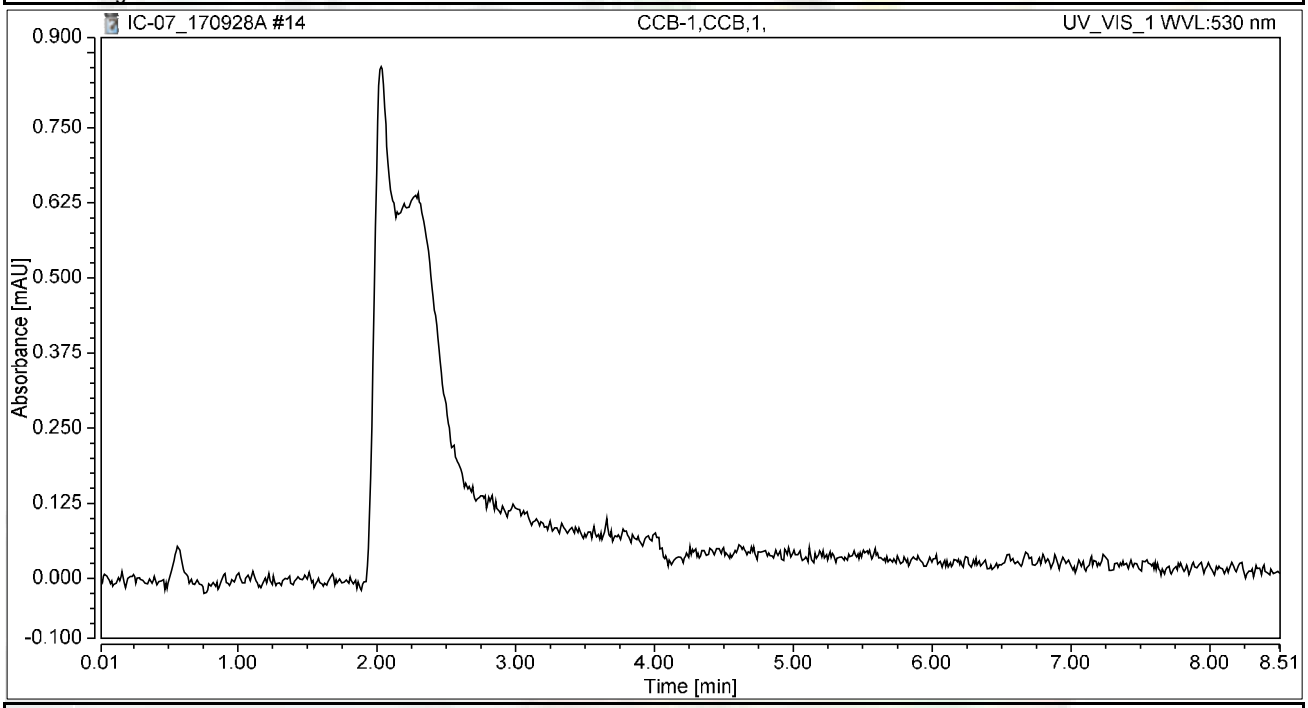
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.046	0.377	100.00	100.00	0.1784
Total:			**0.046**	**0.377**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

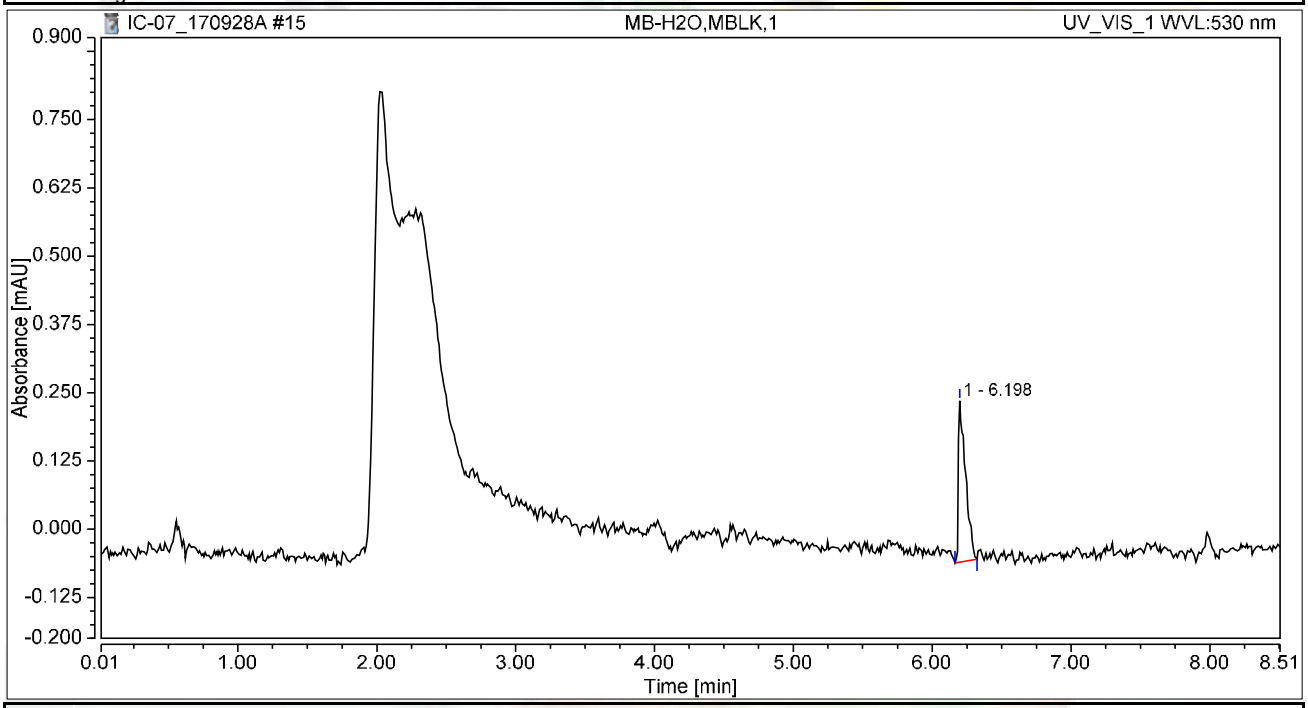
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

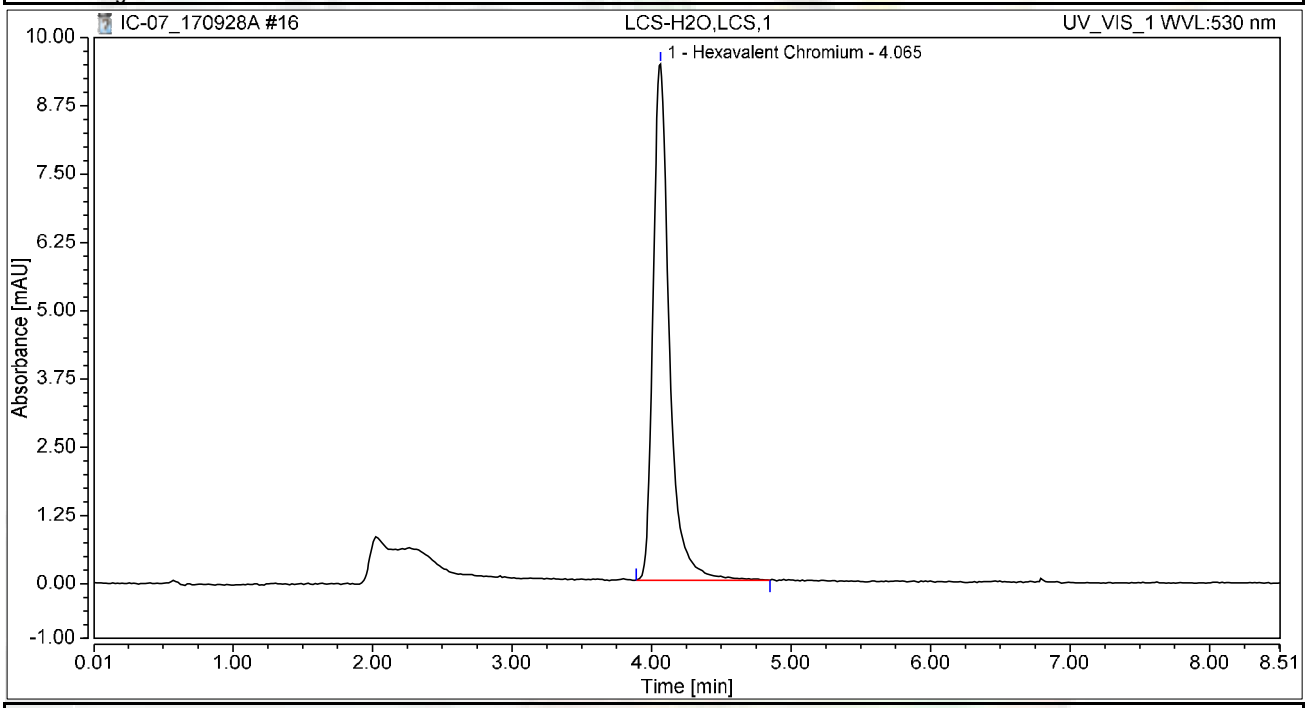
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.198	0.018	0.295	100.00	100.00	n.a.
Total:			**0.018**	**0.295**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 21:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

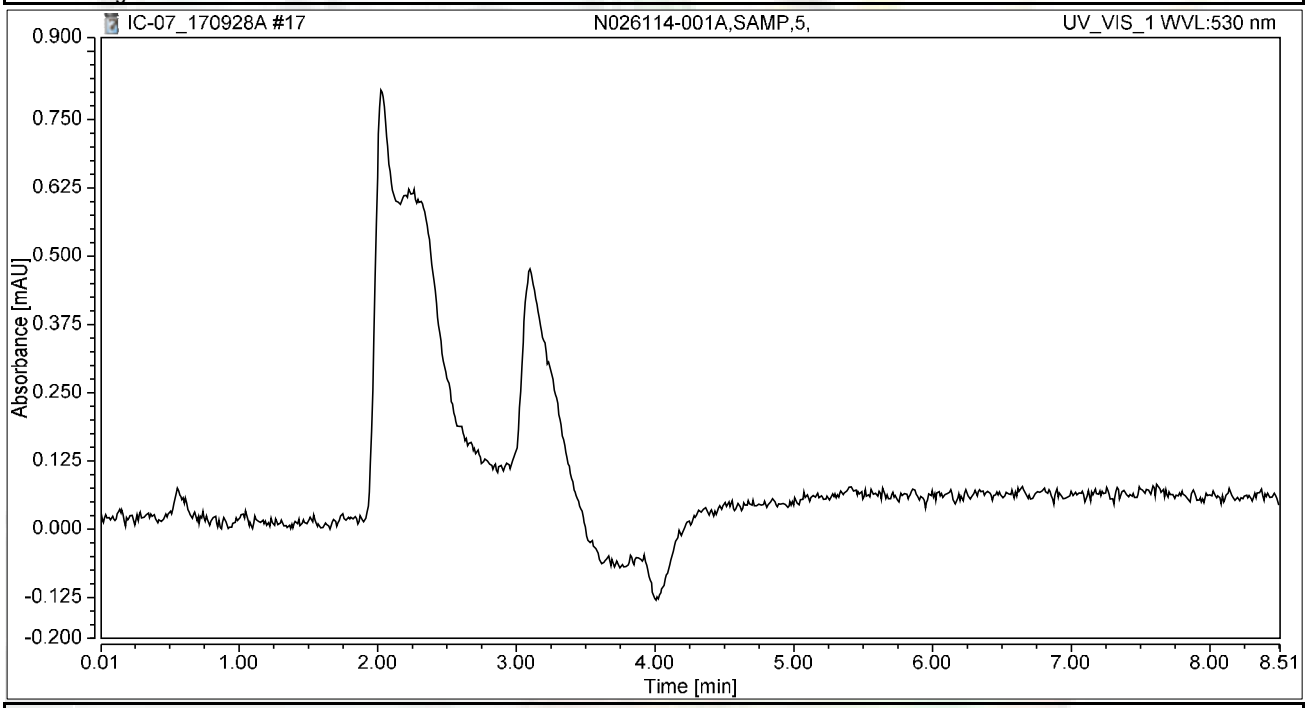
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.285	9.454	100.00	100.00	4.9494
Total:			**1.285**	**9.454**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

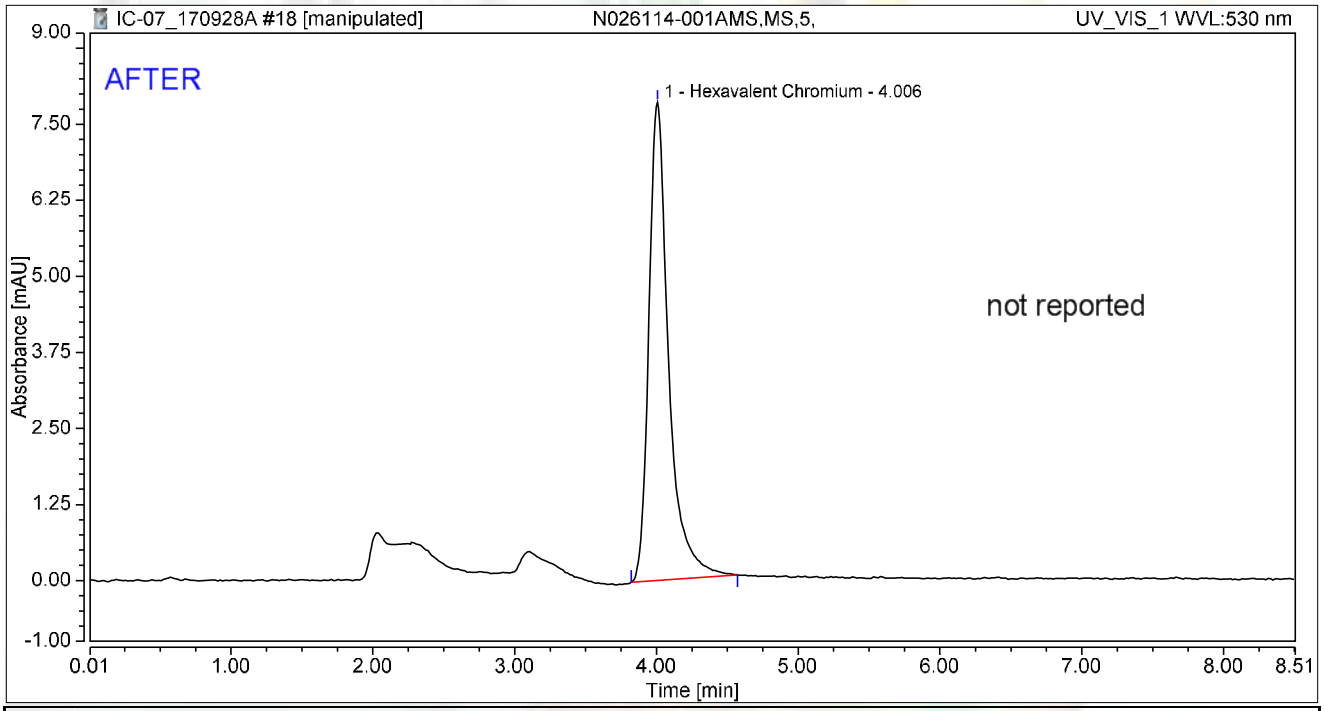
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	1.269	7.861	100.00	100.00	4.8905
Total:			**1.269**	**7.861**	**100.00**	**100.00**	

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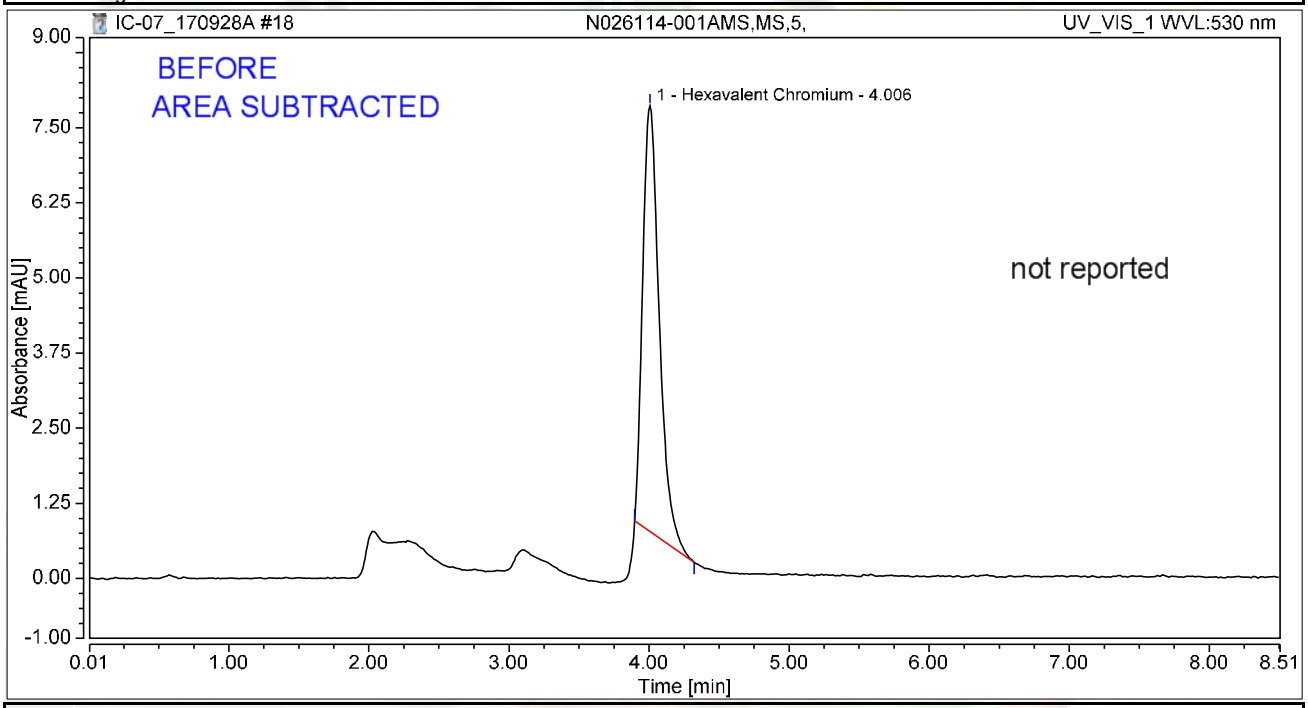
Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.975	7.079	100.00	100.00	3.7584
Total:			**0.975**	**7.079**	**100.00**	**100.00**	

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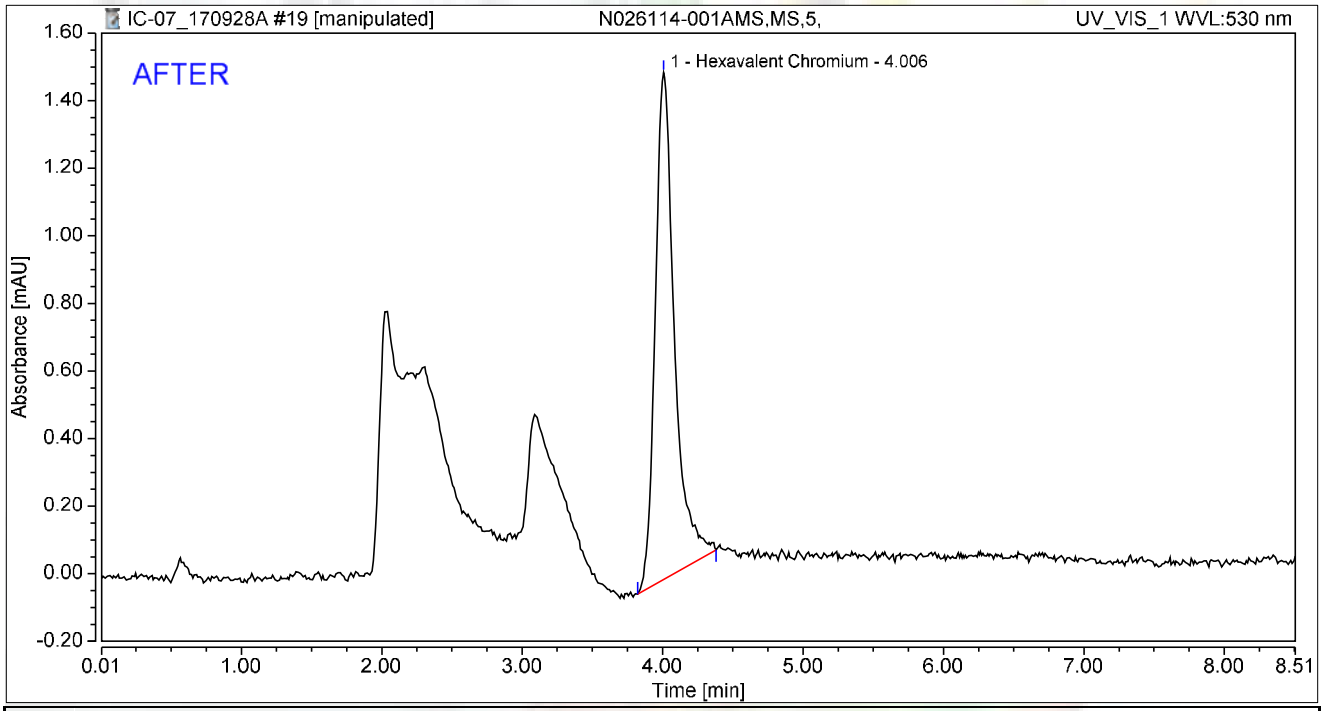
Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.238	1.500	100.00	100.00	0.9168
Total:			**0.238**	**1.500**	**100.00**	**100.00**	

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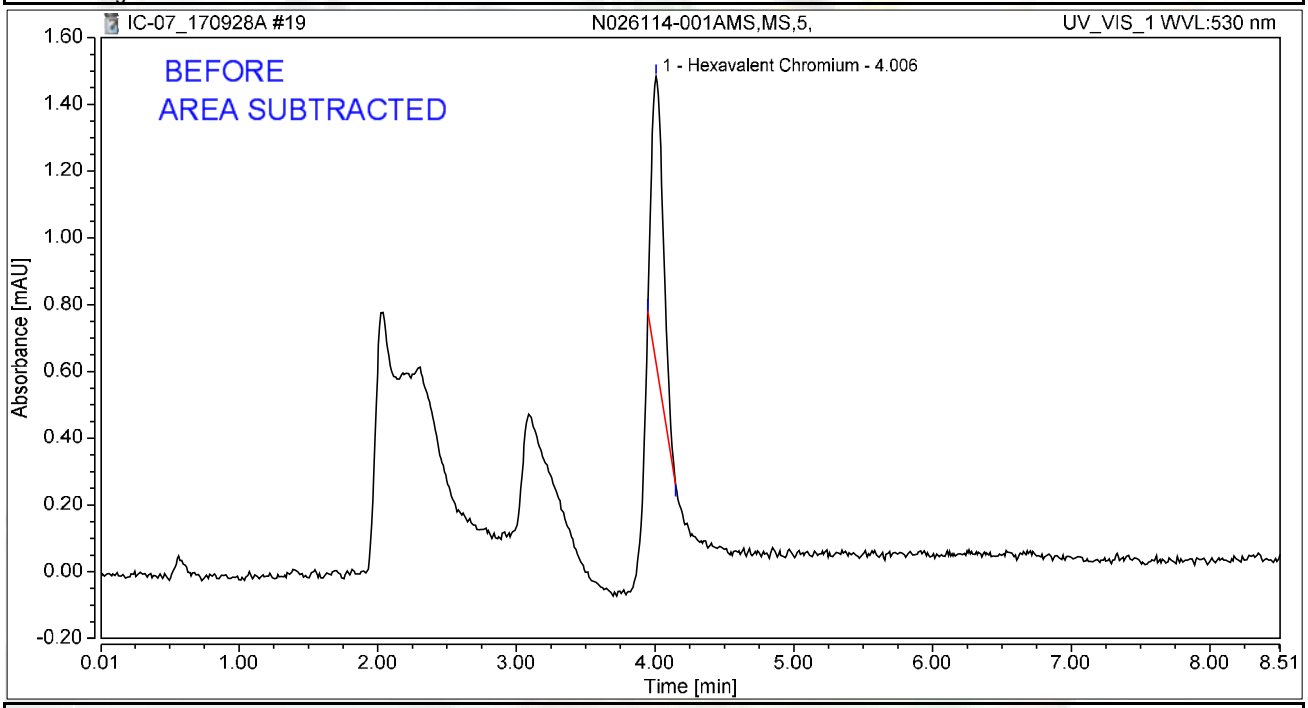
Reviewed by: 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.085	0.854	100.00	100.00	0.3284
Total:			**0.085**	**0.854**	**100.00**	**100.00**	

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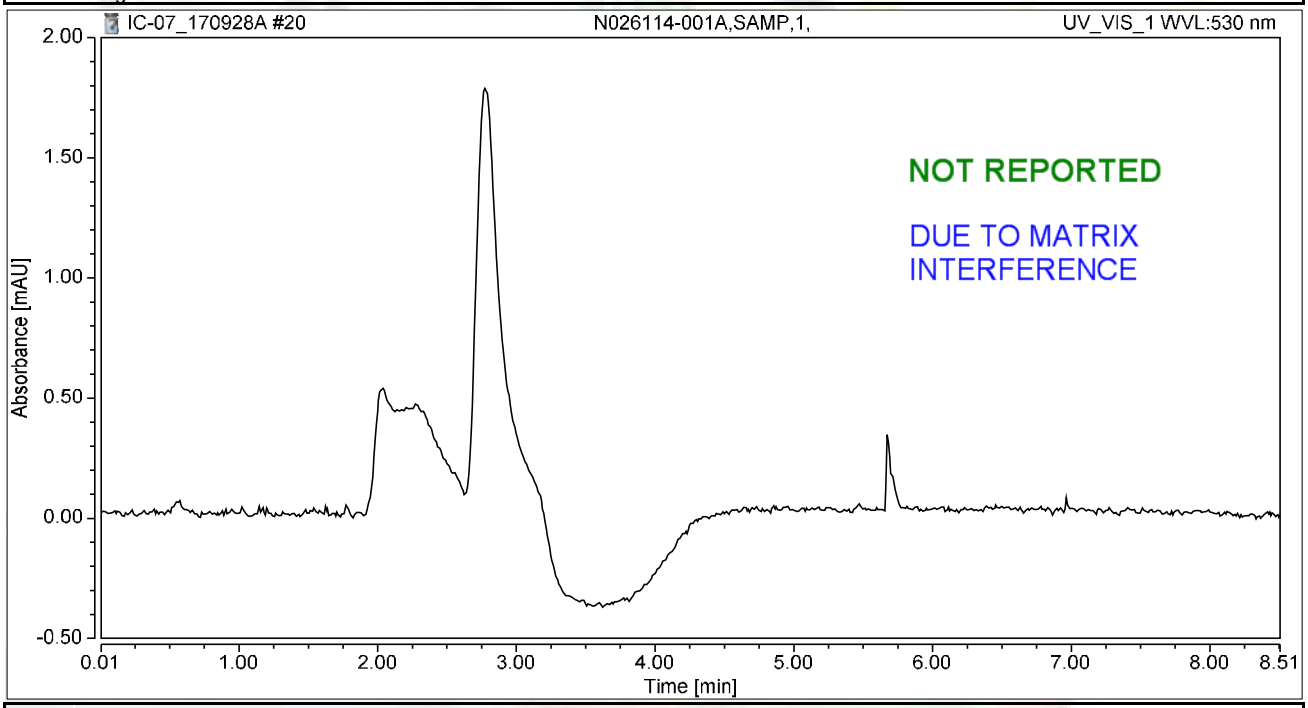
Chromatogram and Results

Injection Details

Injection Name:	**N026114-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

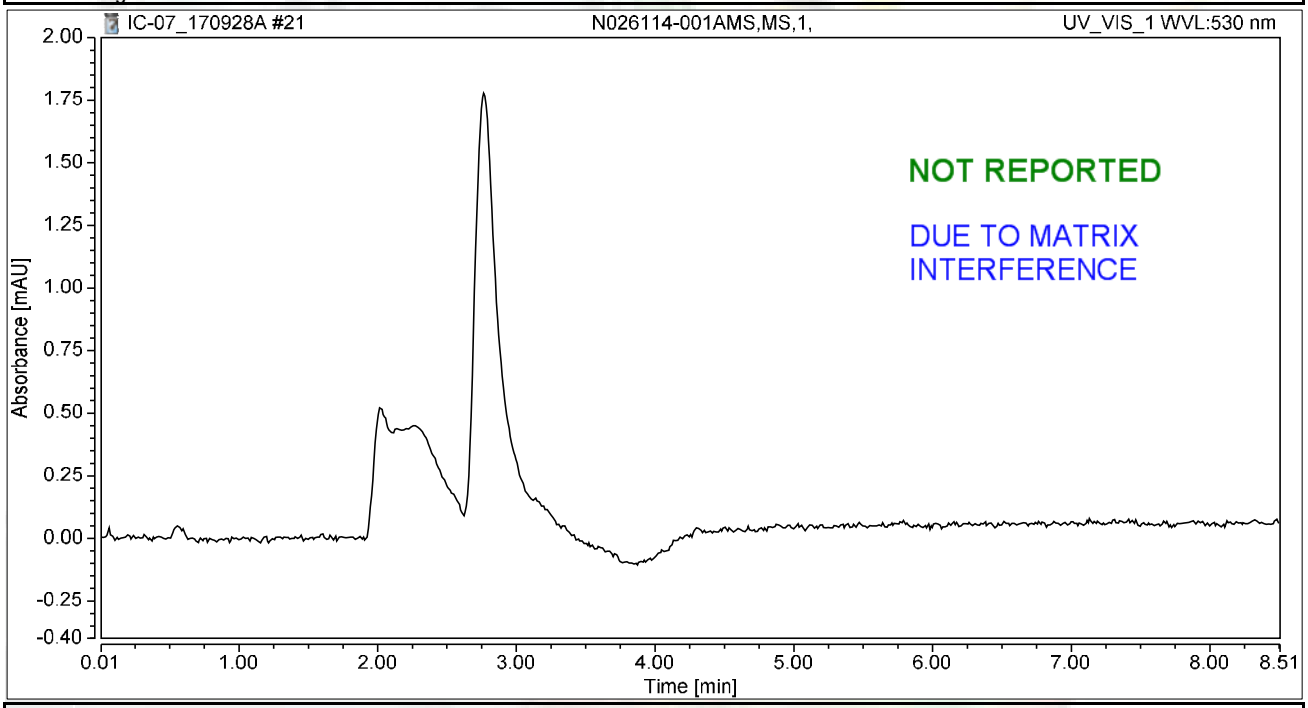
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

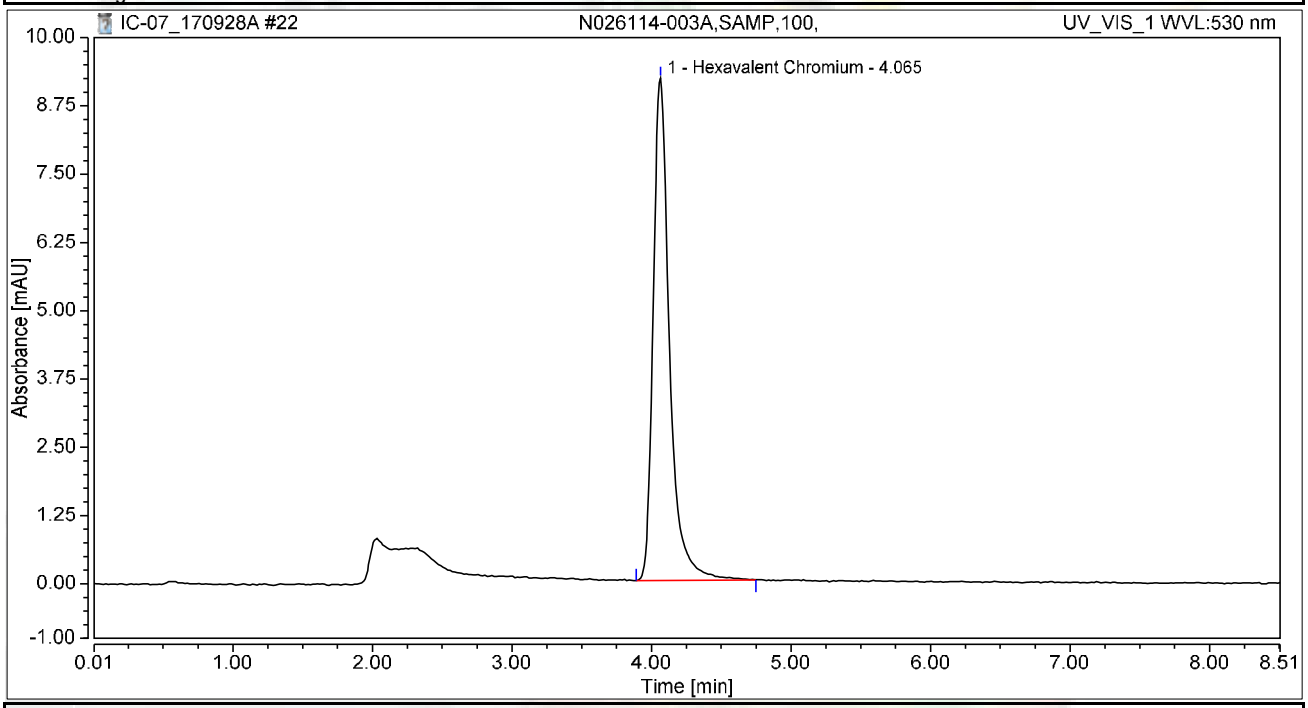
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 22:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

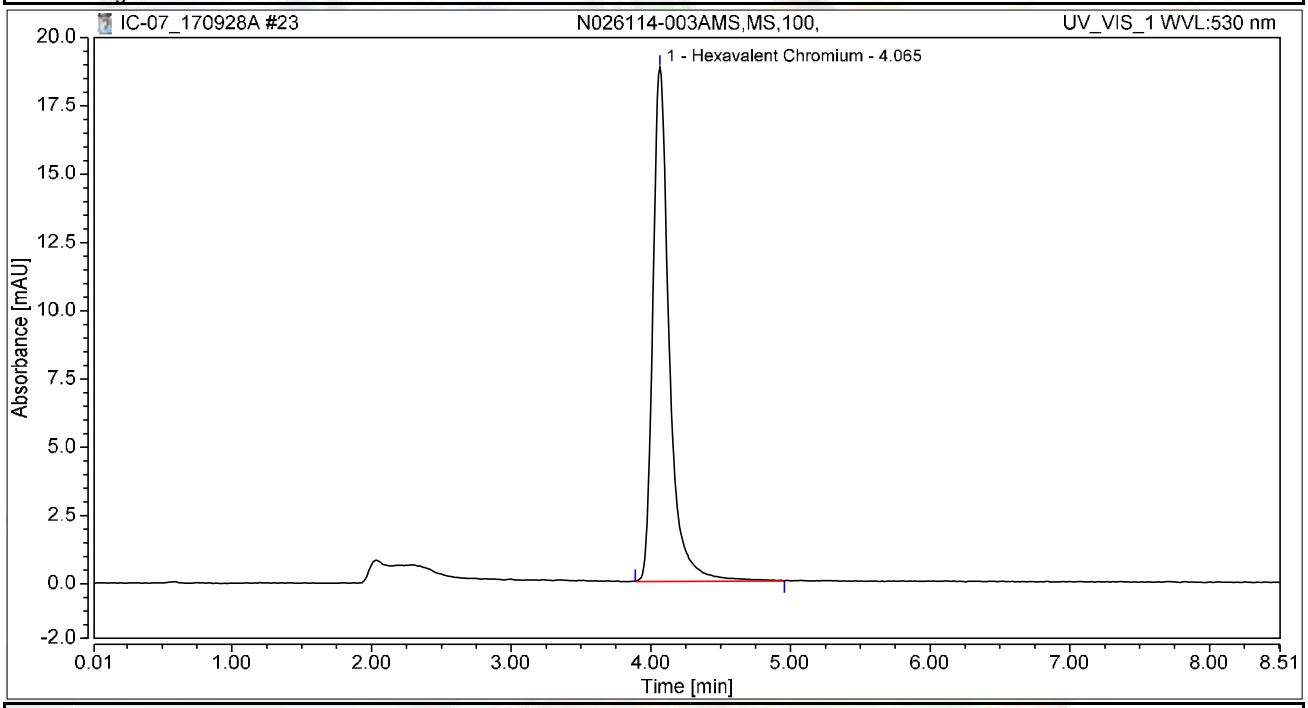
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.247	9.189	100.00	100.00	4.8043
Total:			**1.247**	**9.189**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003AMS,MS,100,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

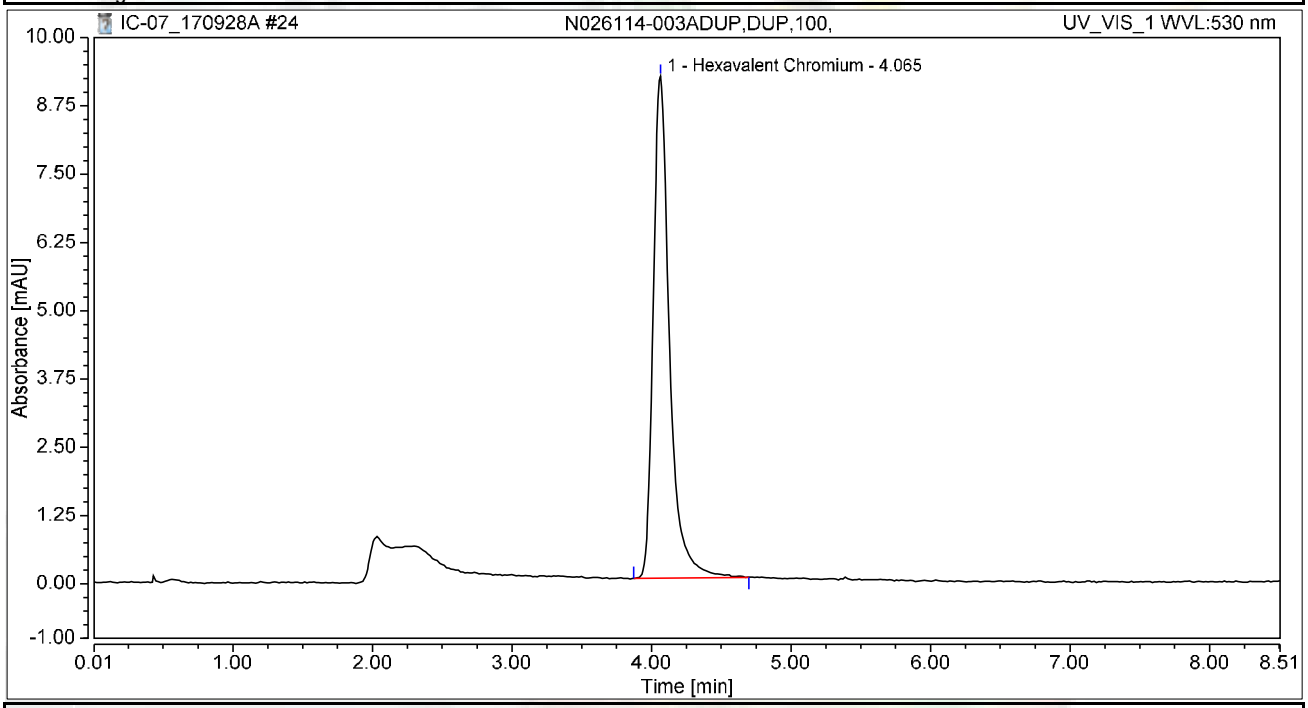
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.567	18.827	100.00	100.00	9.8902
Total:			**2.567**	**18.827**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003ADUP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

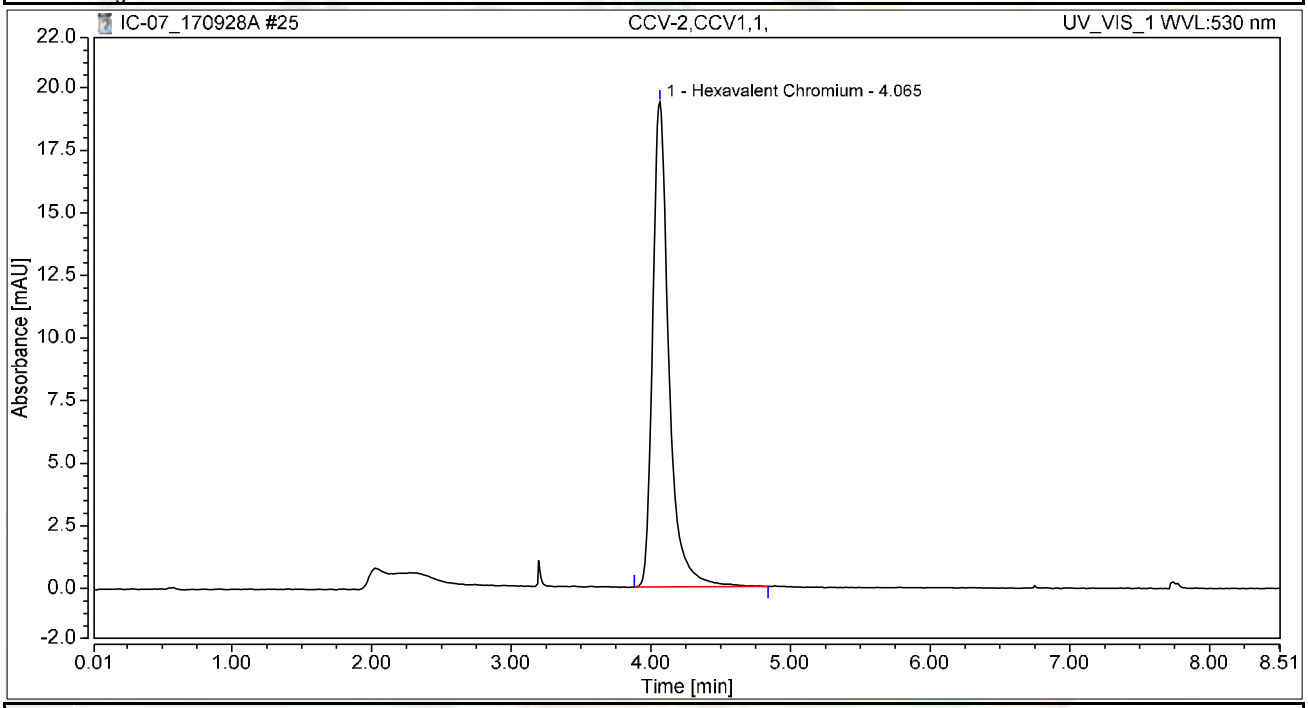
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.244	9.185	100.00	100.00	4.7918
Total:			**1.244**	**9.185**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

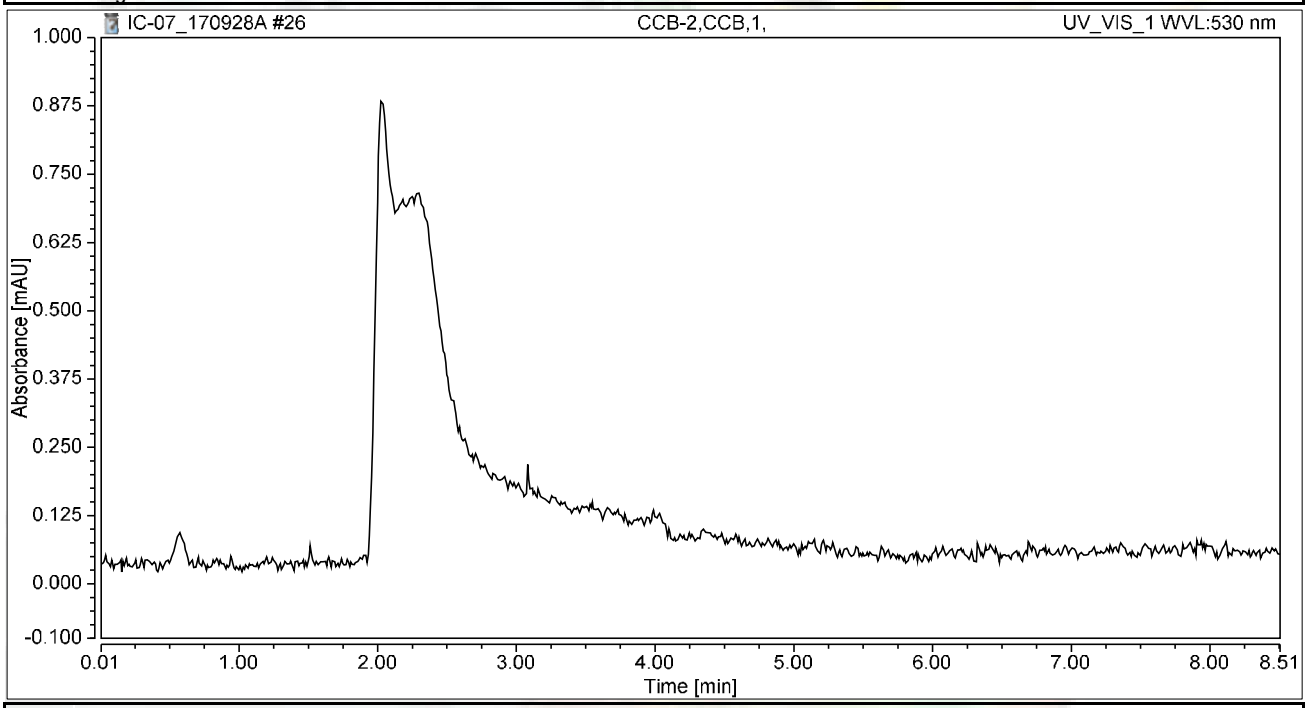
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.603	19.361	100.00	100.00	10.0285
Total:			**2.603**	**19.361**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

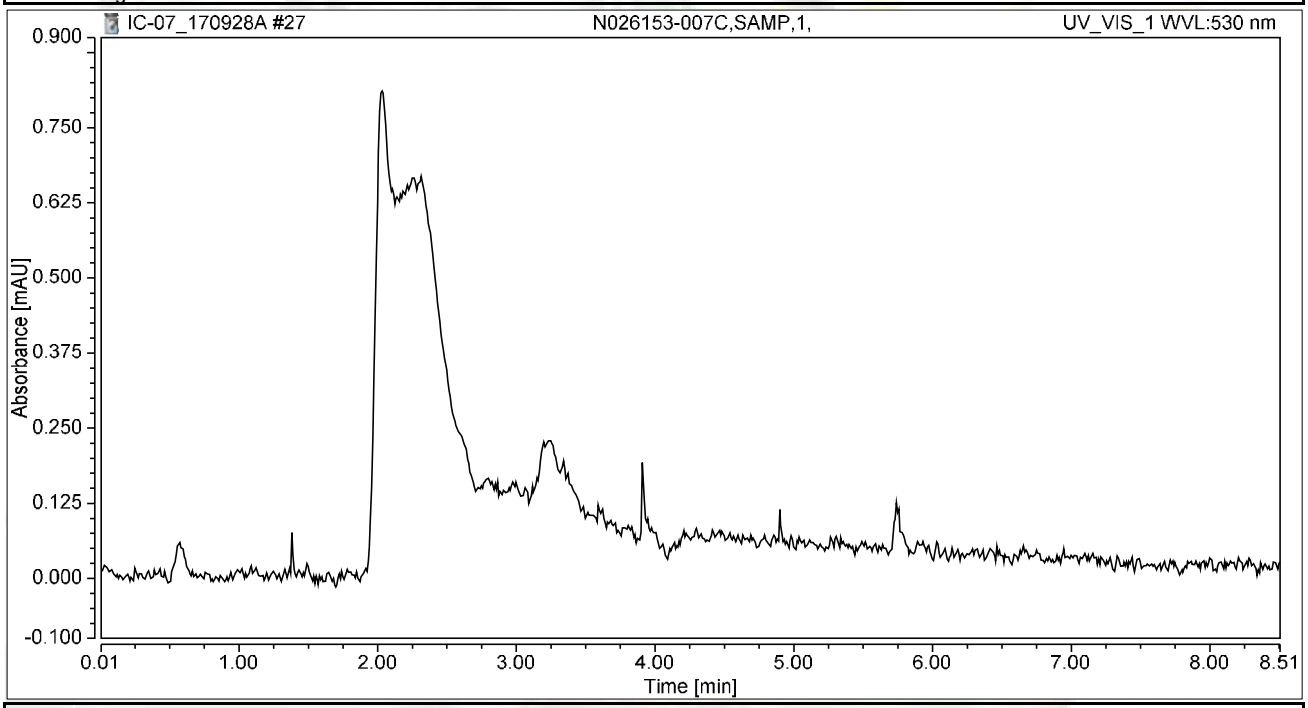
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-007C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

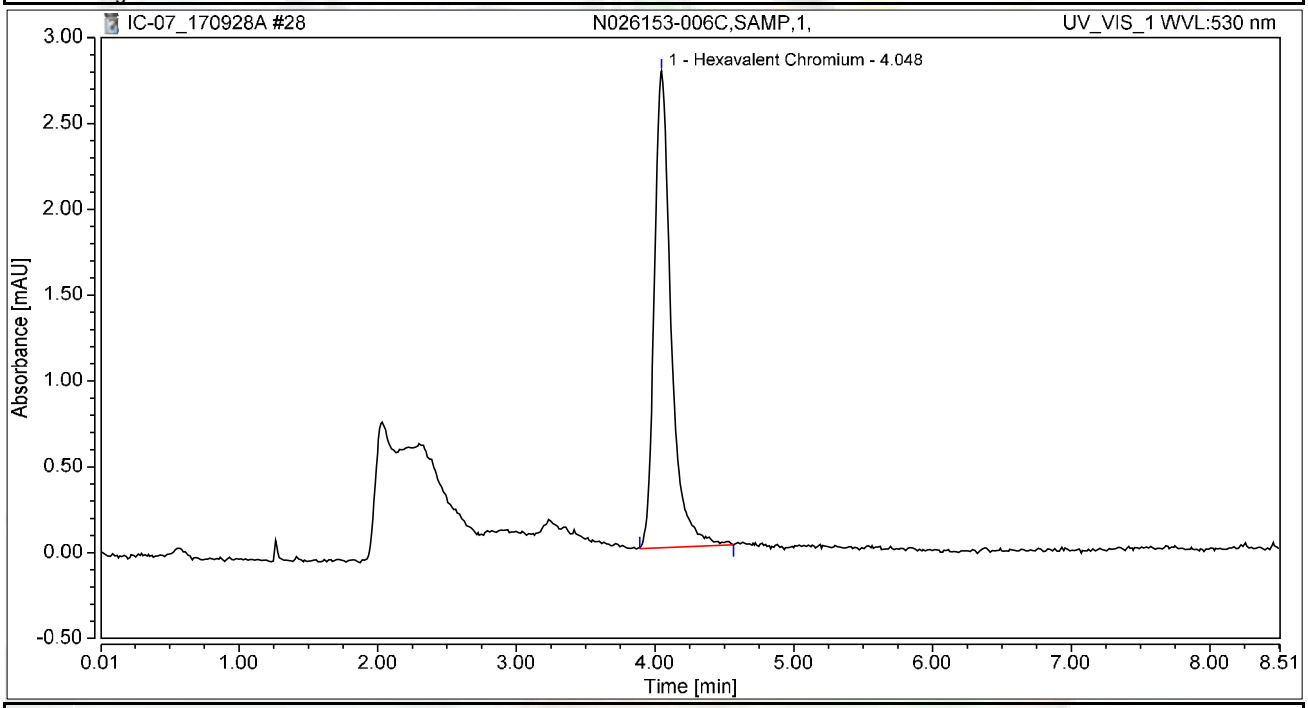
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-006C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/Sep/17 23:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

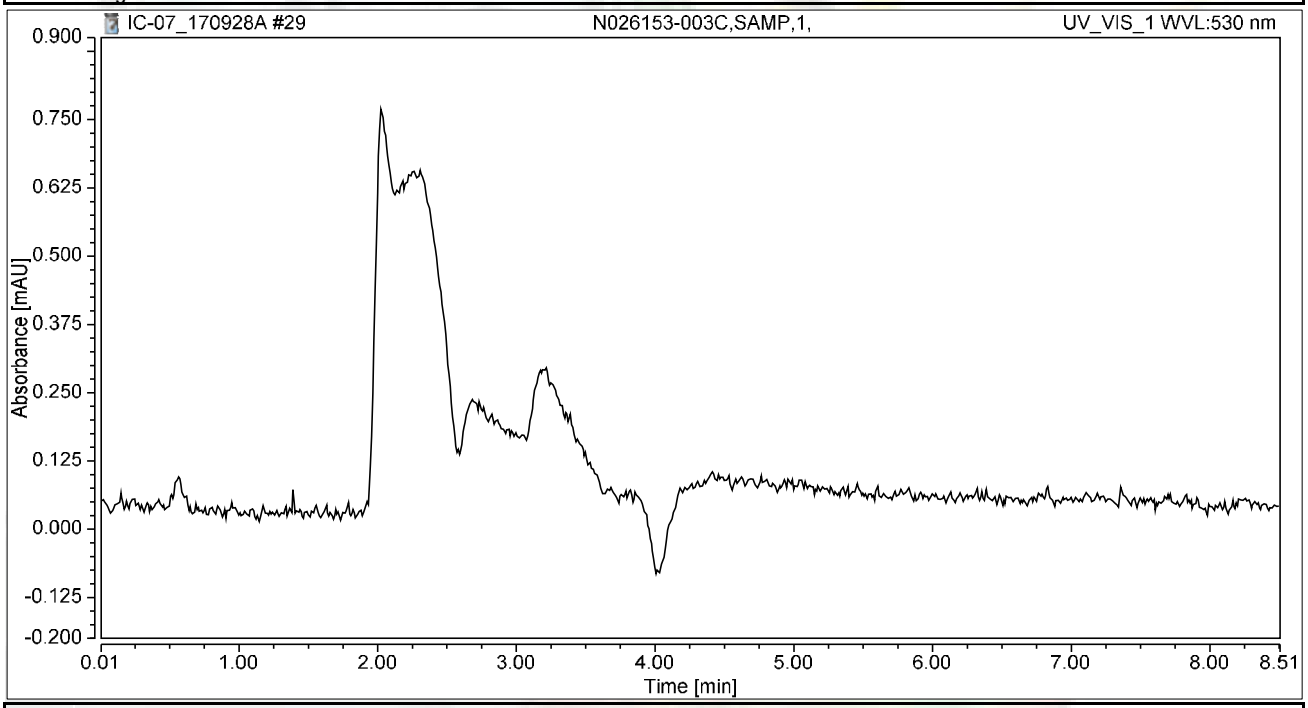
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.390	2.777	100.00	100.00	1.5041
Total:			**0.390**	**2.777**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-003C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

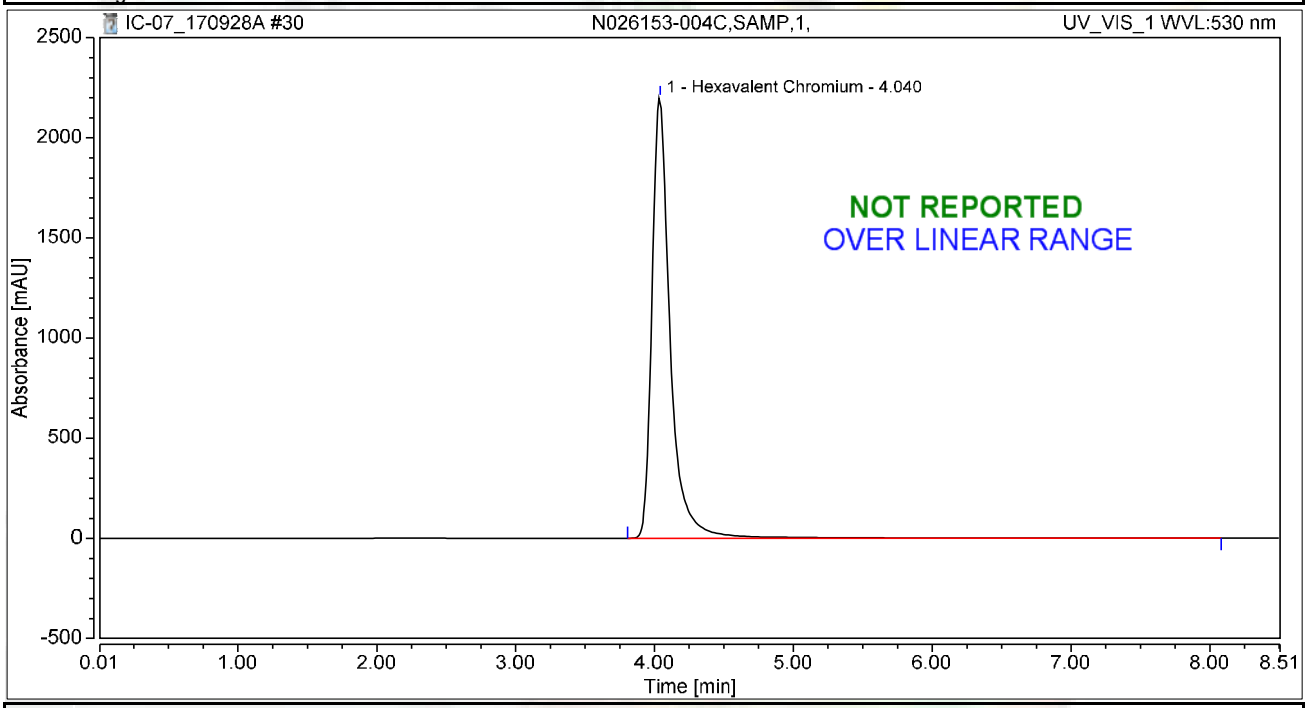
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004C,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

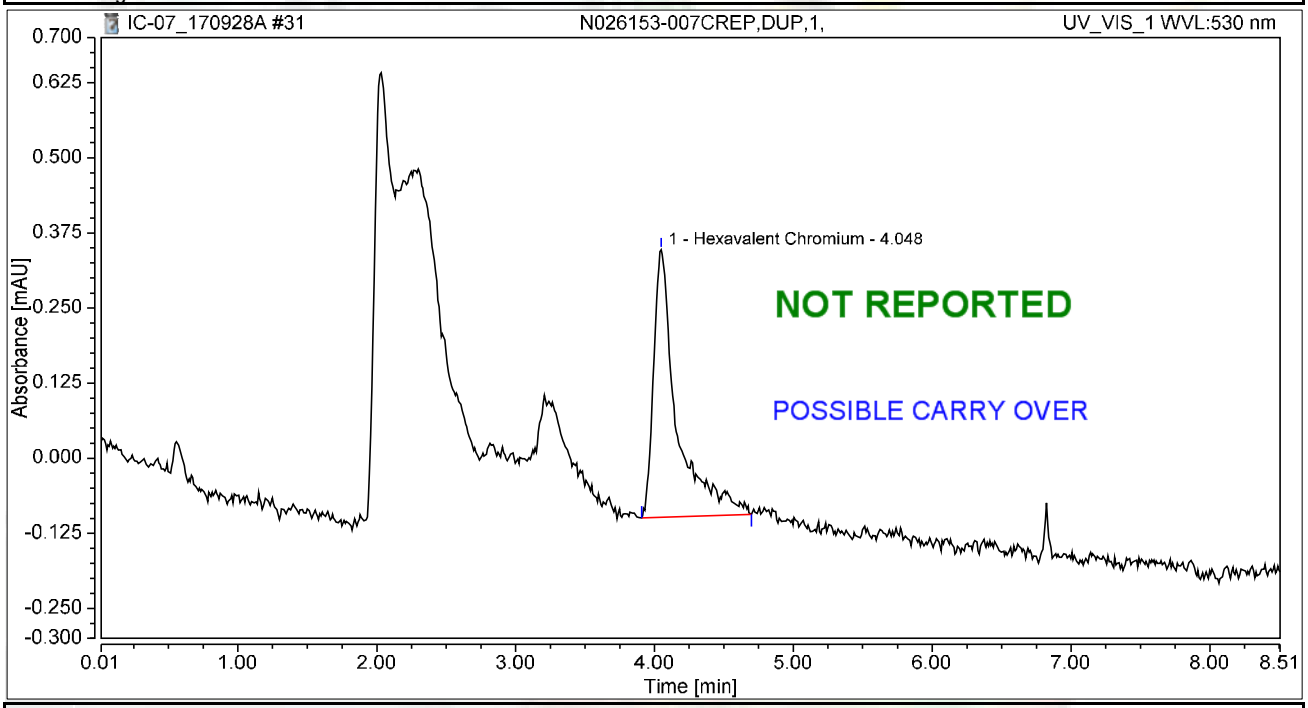
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	337.657	2199.290	100.00	100.00	1300.9548
Total:			**337.657**	**2199.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-007CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.088	0.445	100.00	100.00	0.3374
Total:			**0.088**	**0.445**	**100.00**	**100.00**	

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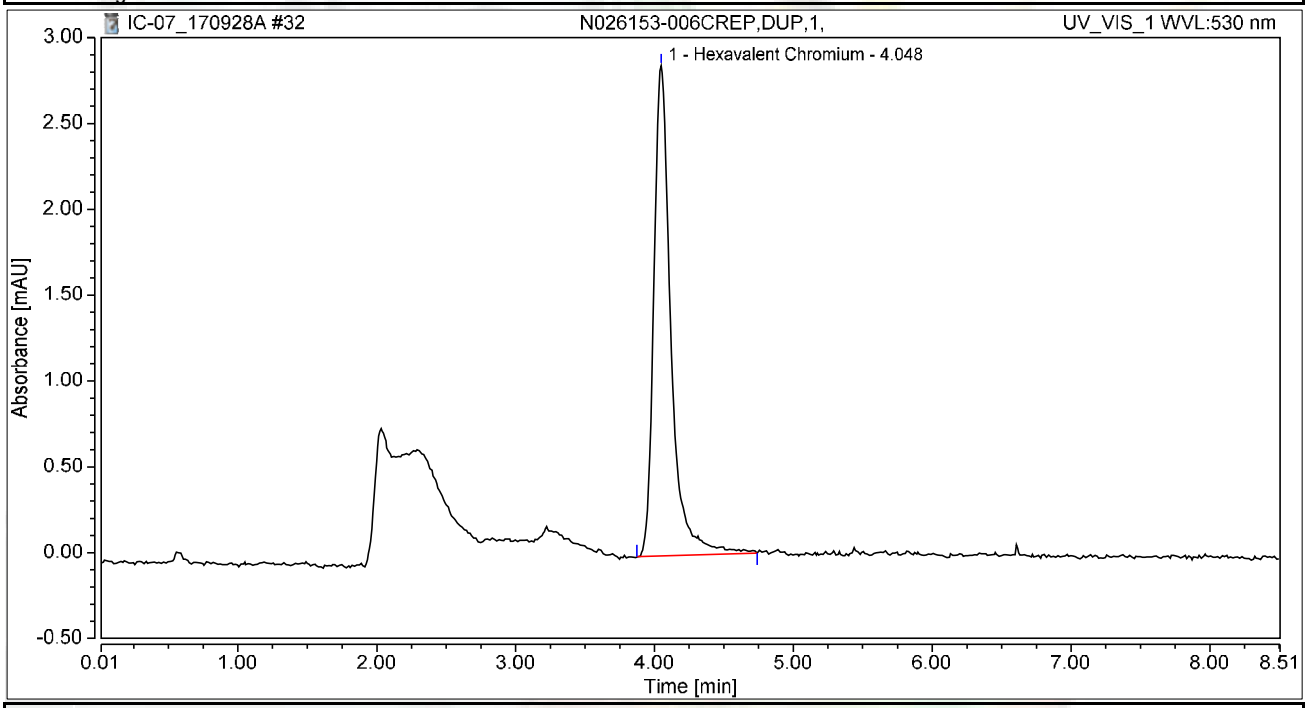
Chromatogram and Results

Injection Details

Injection Name:	**N026153-006CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

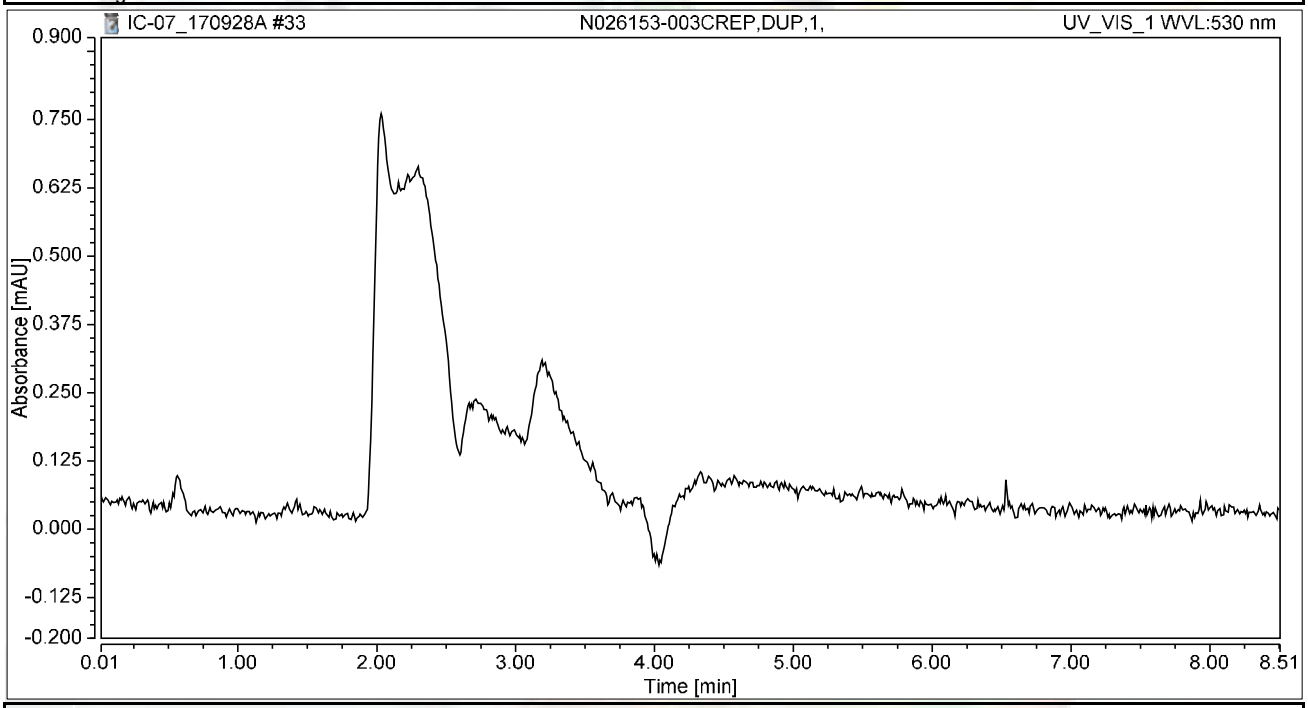
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.409	2.856	100.00	100.00	1.5761
Total:			**0.409**	**2.856**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-003CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

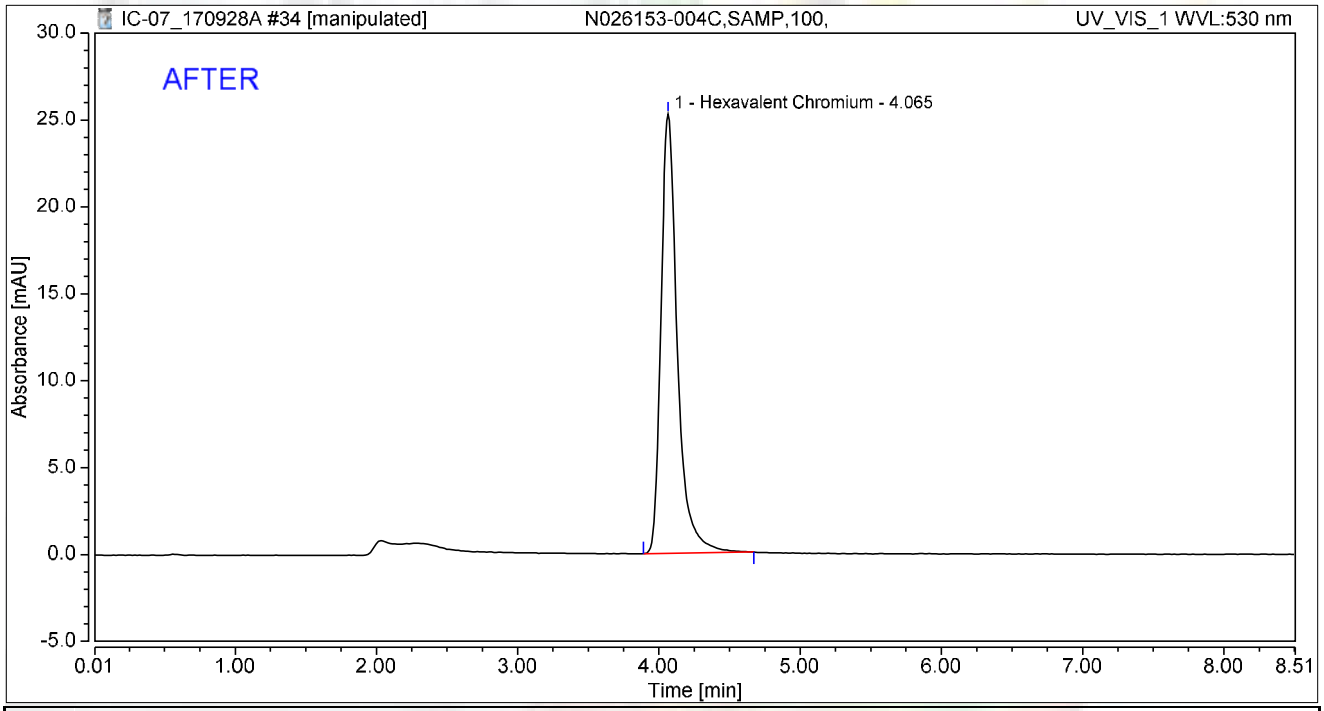
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004C,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.393	25.284	100.00	100.00	13.0717
Total:			**3.393**	**25.284**	**100.00**	**100.00**	

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Reviewed by: 10/10/2017

My first report/integration

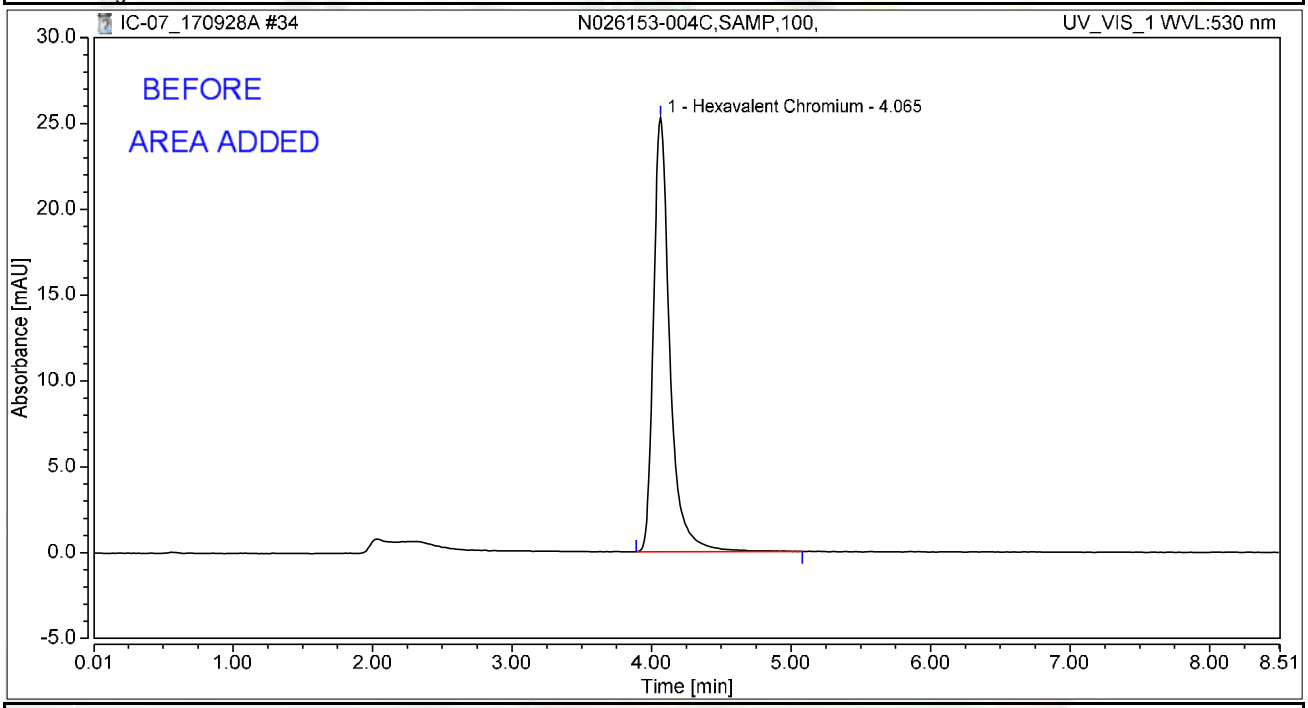
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004C,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 00:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.443	25.303	100.00	100.00	13.2660
Total:			**3.443**	**25.303**	**100.00**	**100.00**	

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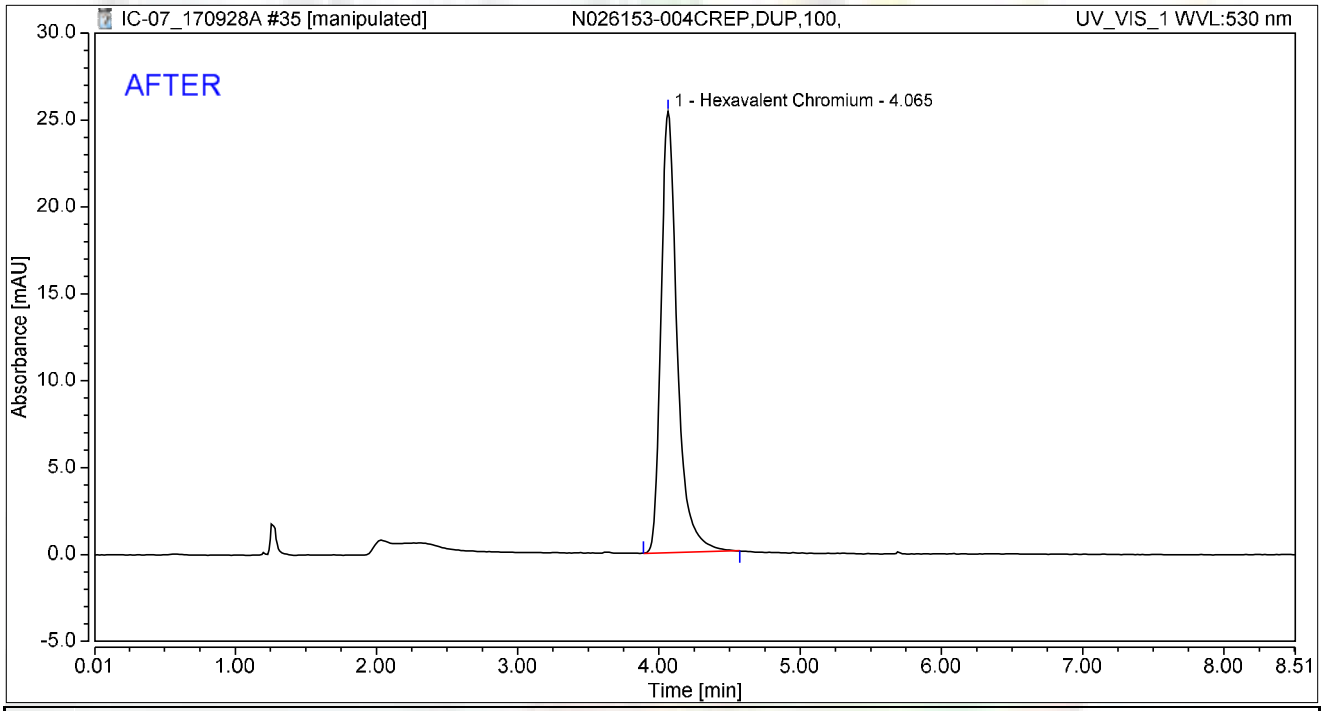
Chromatogram and Results

Injection Details

Injection Name:	**N026153-004CREP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.385	25.375	100.00	100.00	13.0409
Total:			**3.385**	**25.375**	**100.00**	**100.00**	

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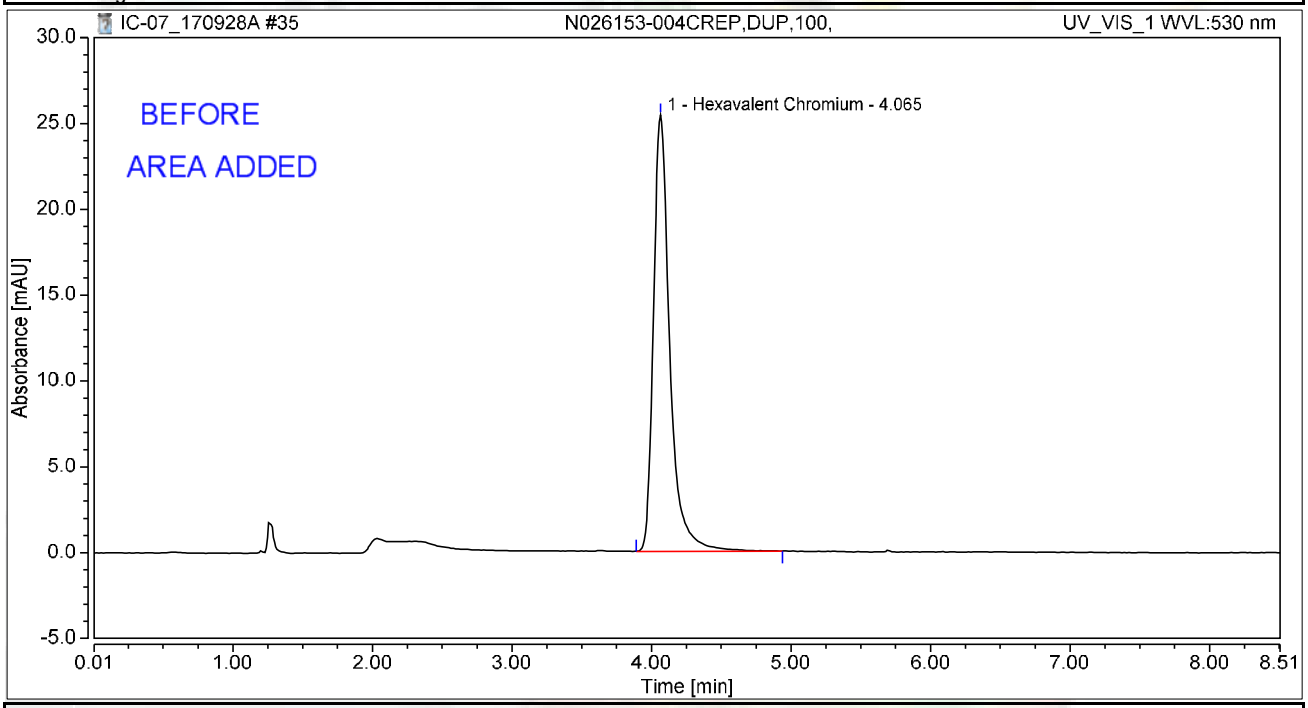
Reviewed by: Nancy 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026153-004CREP,DUP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.449	25.409	100.00	100.00	13.2904
Total:			**3.449**	**25.409**	**100.00**	**100.00**	

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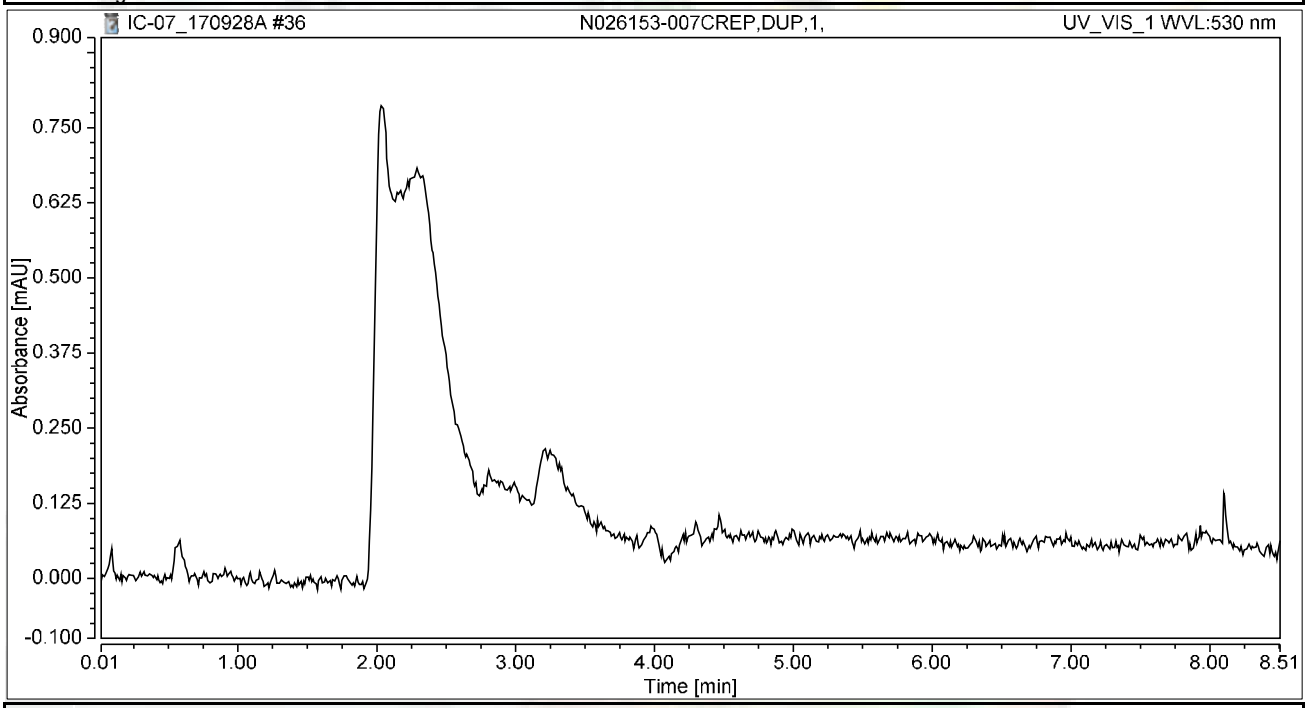
Chromatogram and Results

Injection Details

Injection Name:	**N026153-007CREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

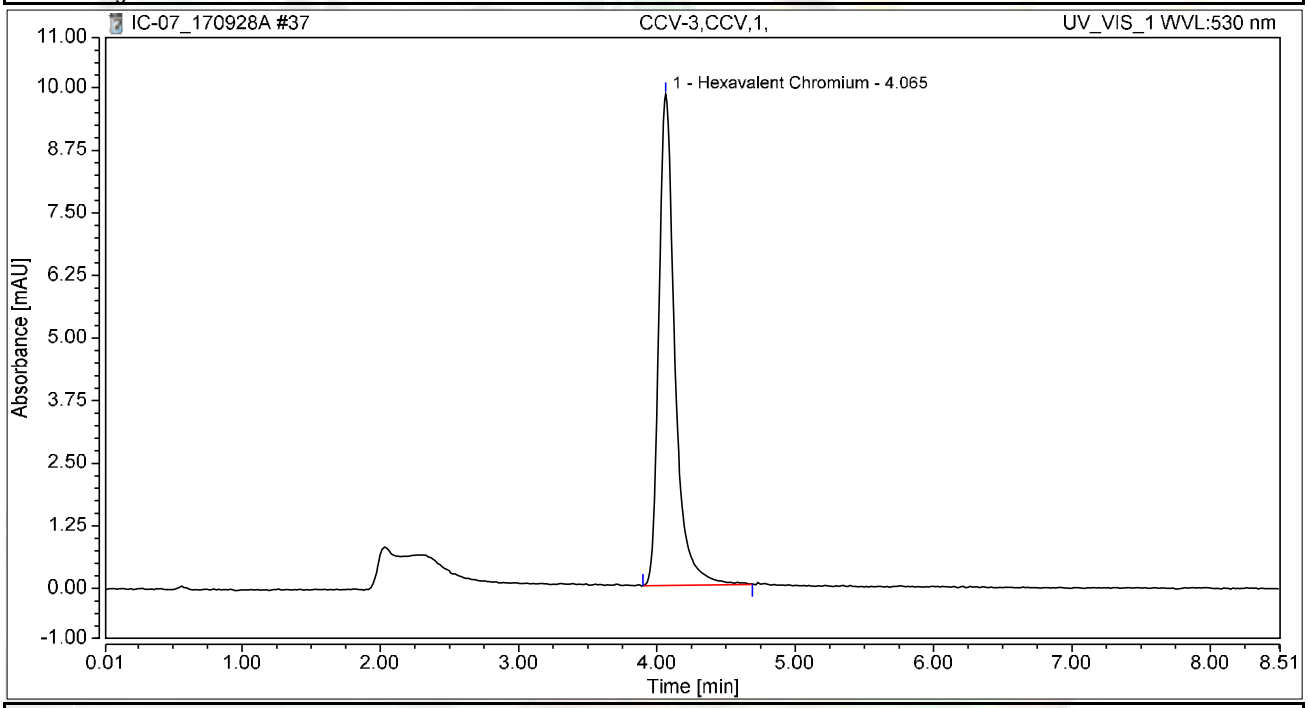
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

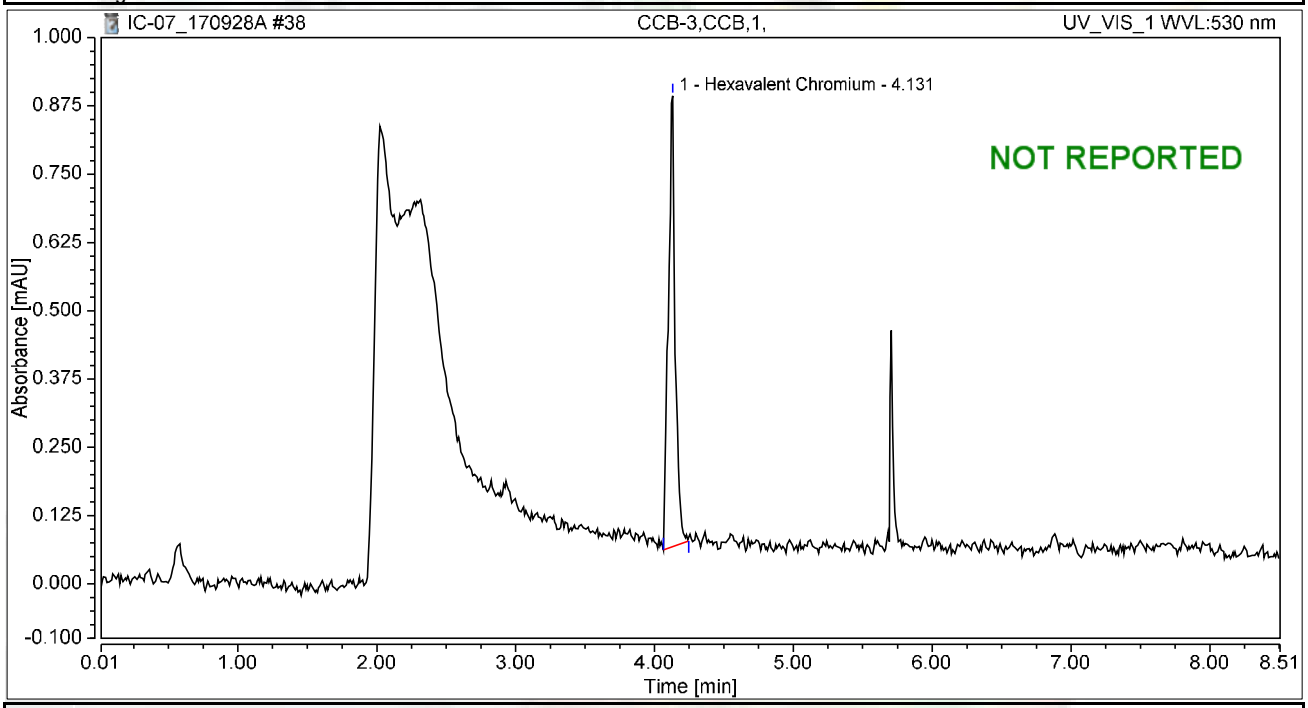
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.322	9.815	100.00	100.00	5.0937
Total:			**1.322**	**9.815**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

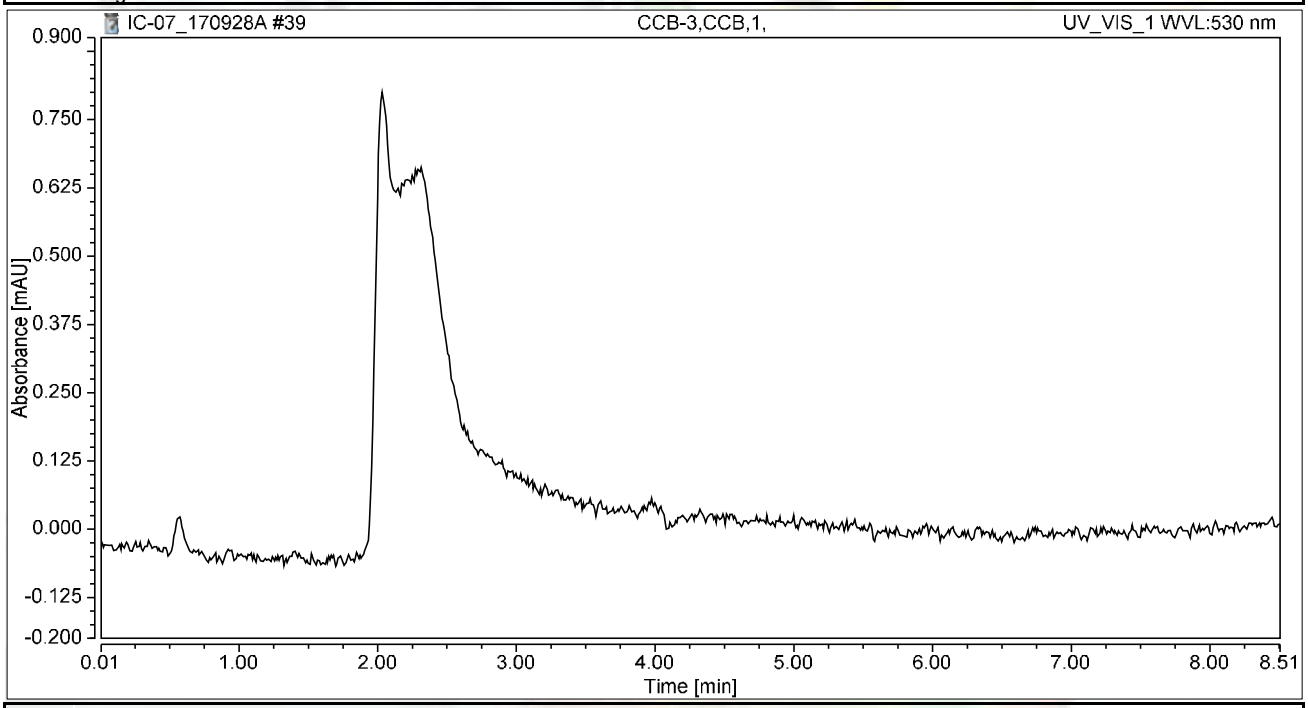
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.131	0.046	0.826	100.00	100.00	0.1774
Total:			**0.046**	**0.826**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

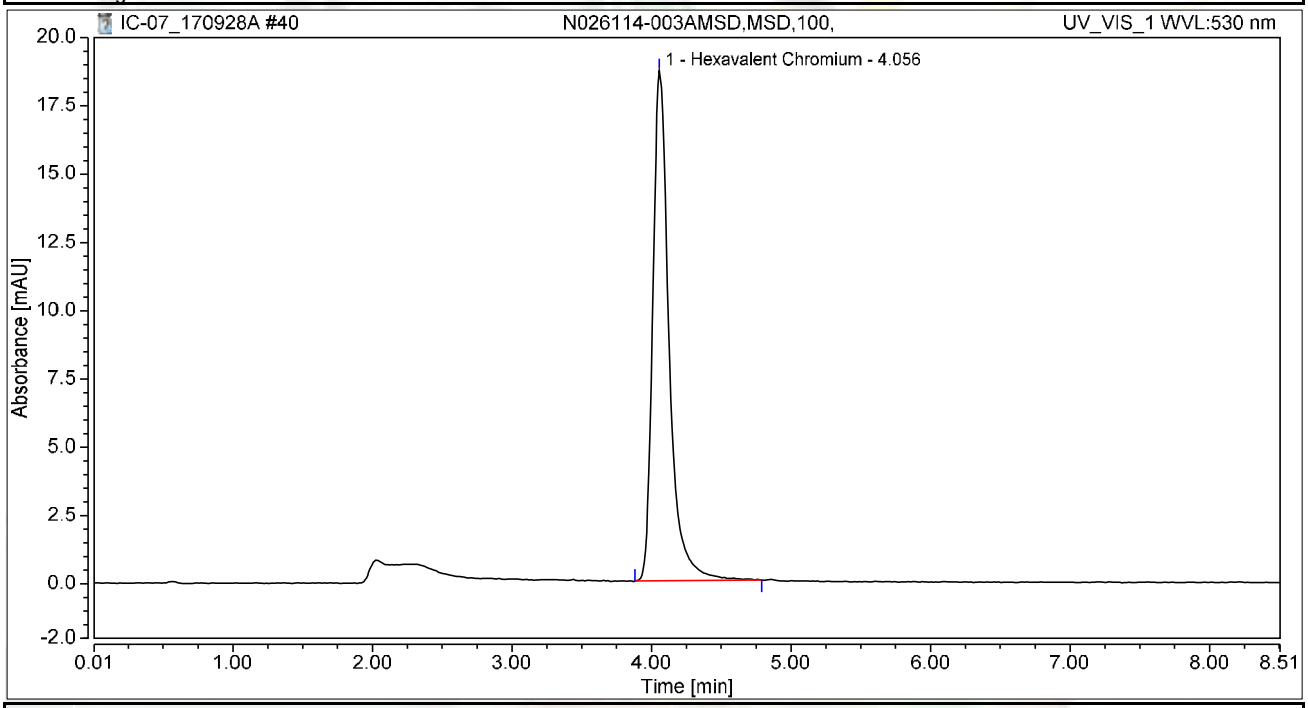
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-003AMSD,MSD,100,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 01:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

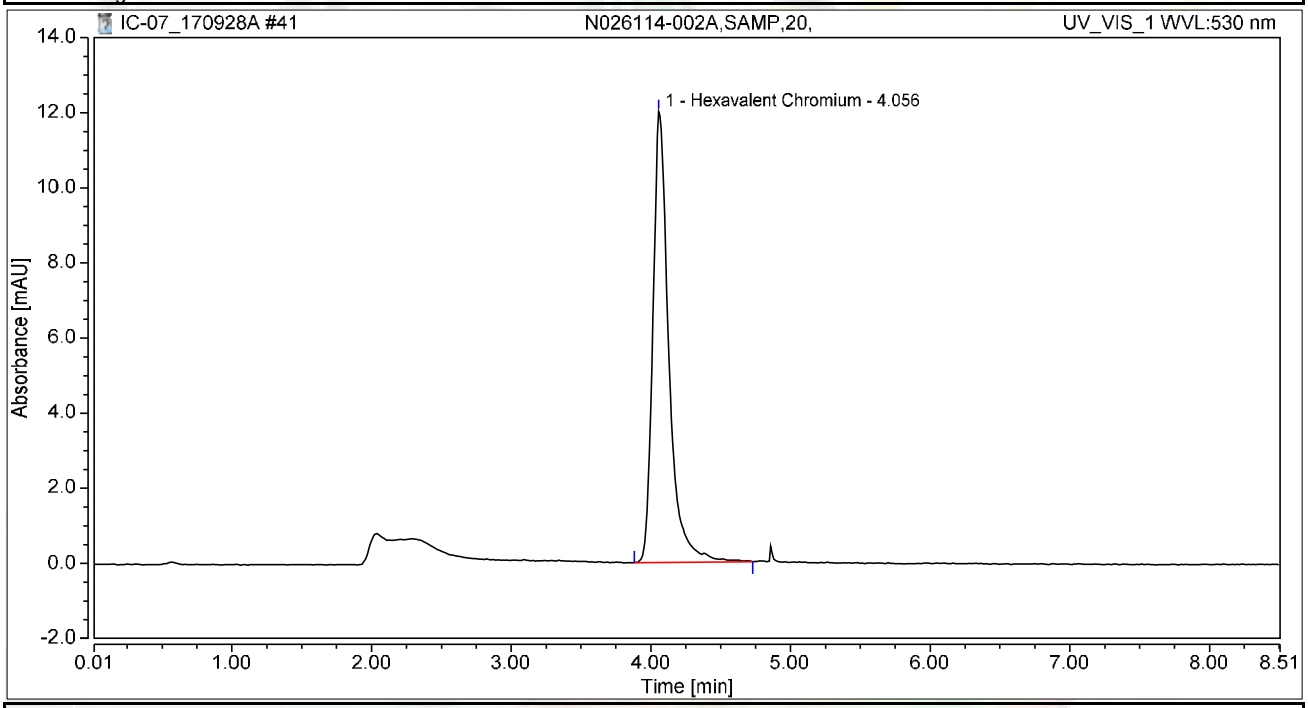
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.540	18.684	100.00	100.00	9.7846
Total:			**2.540**	**18.684**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-002A,SAMP,20,**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

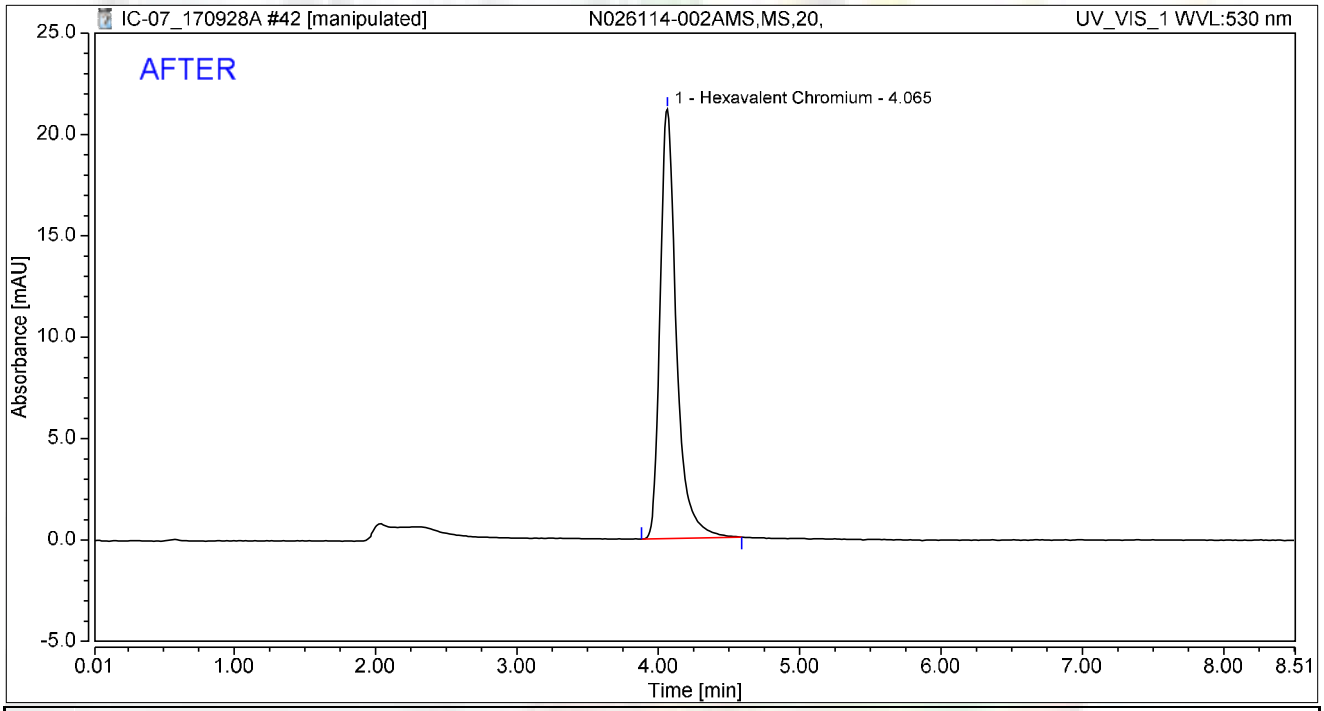
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.592	12.009	100.00	100.00	6.1355
Total:			**1.592**	**12.009**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-002AMS,MS,20,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.851	21.192	100.00	100.00	10.9857
Total:			**2.851**	**21.192**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: 10/10/2017

My first report integration

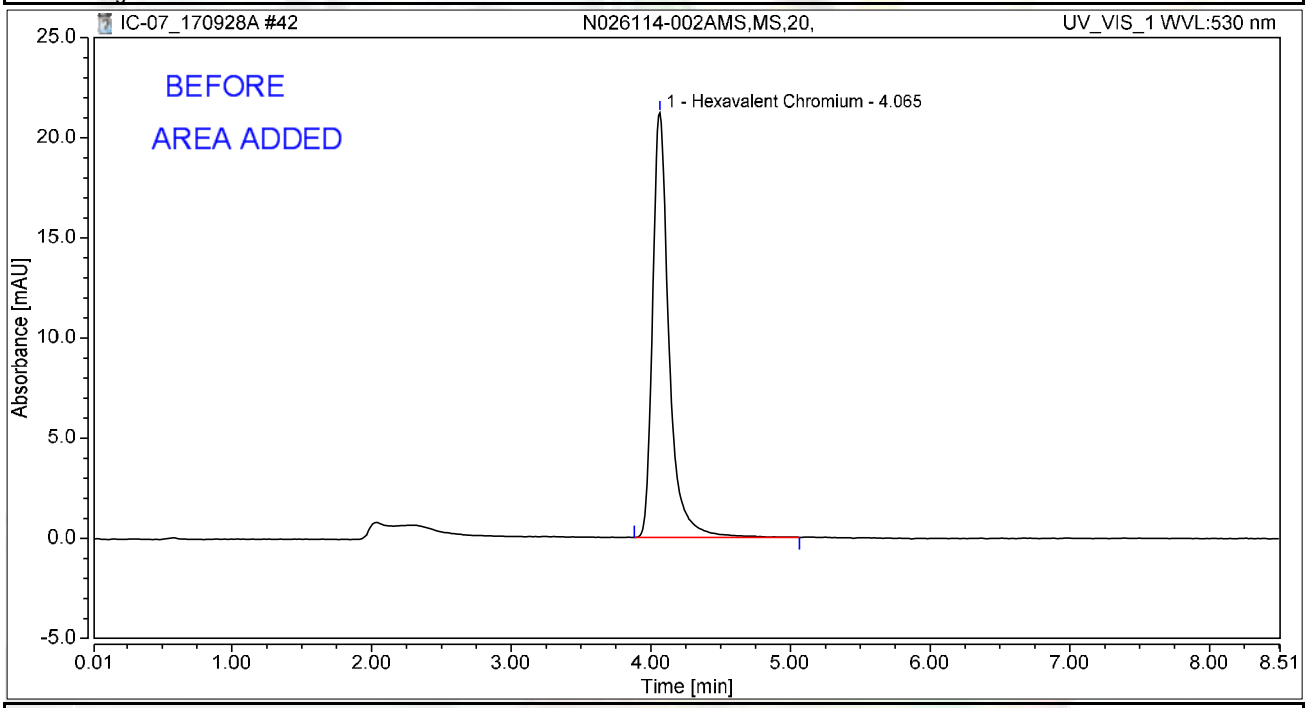
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026114-002AMS,MS,20,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.915	21.220	100.00	100.00	11.2320
Total:			**2.915**	**21.220**	**100.00**	**100.00**	

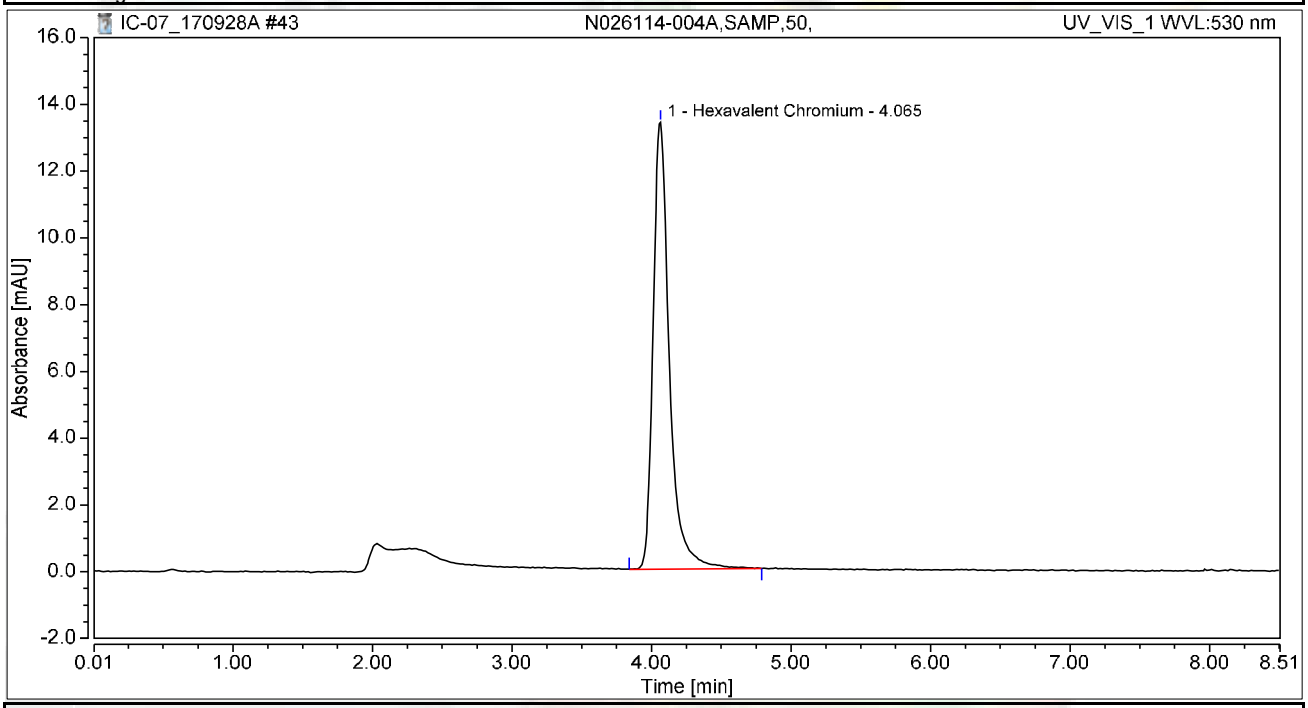
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026114-004A,SAMP,50,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

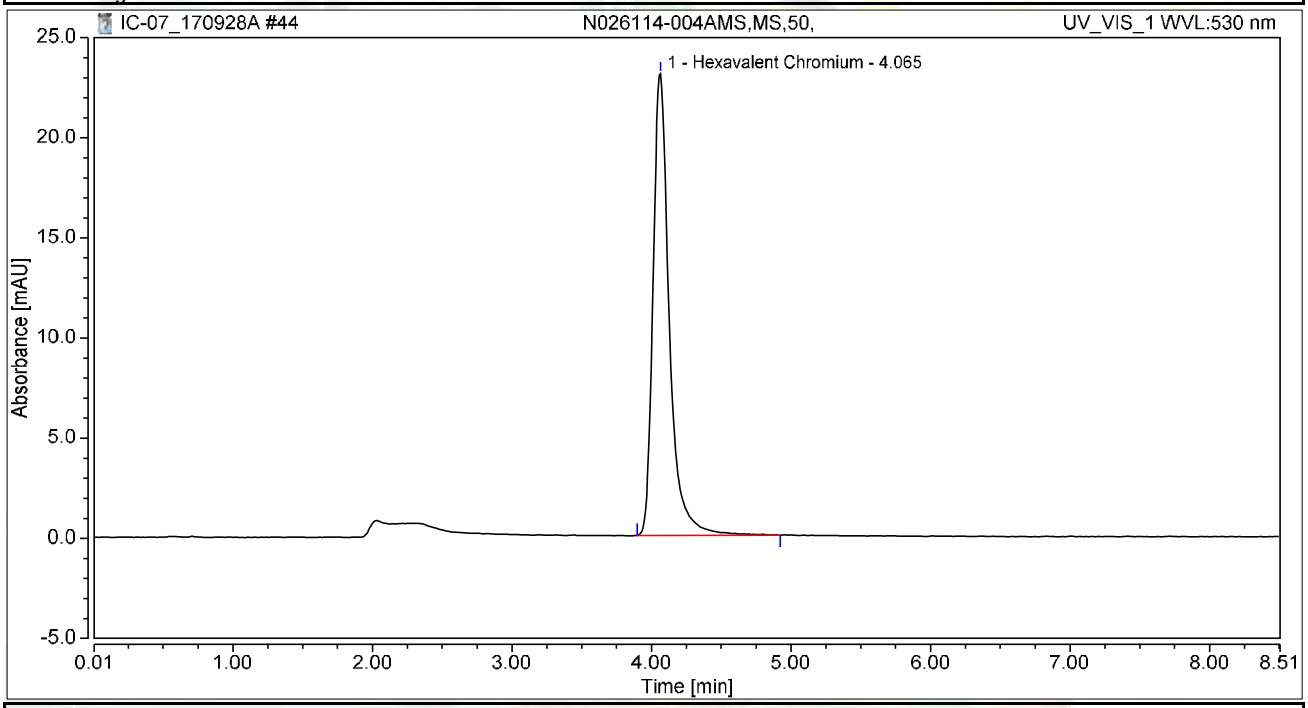
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.809	13.390	100.00	100.00	6.9715
Total:			**1.809**	**13.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-004AMS,MS,50,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

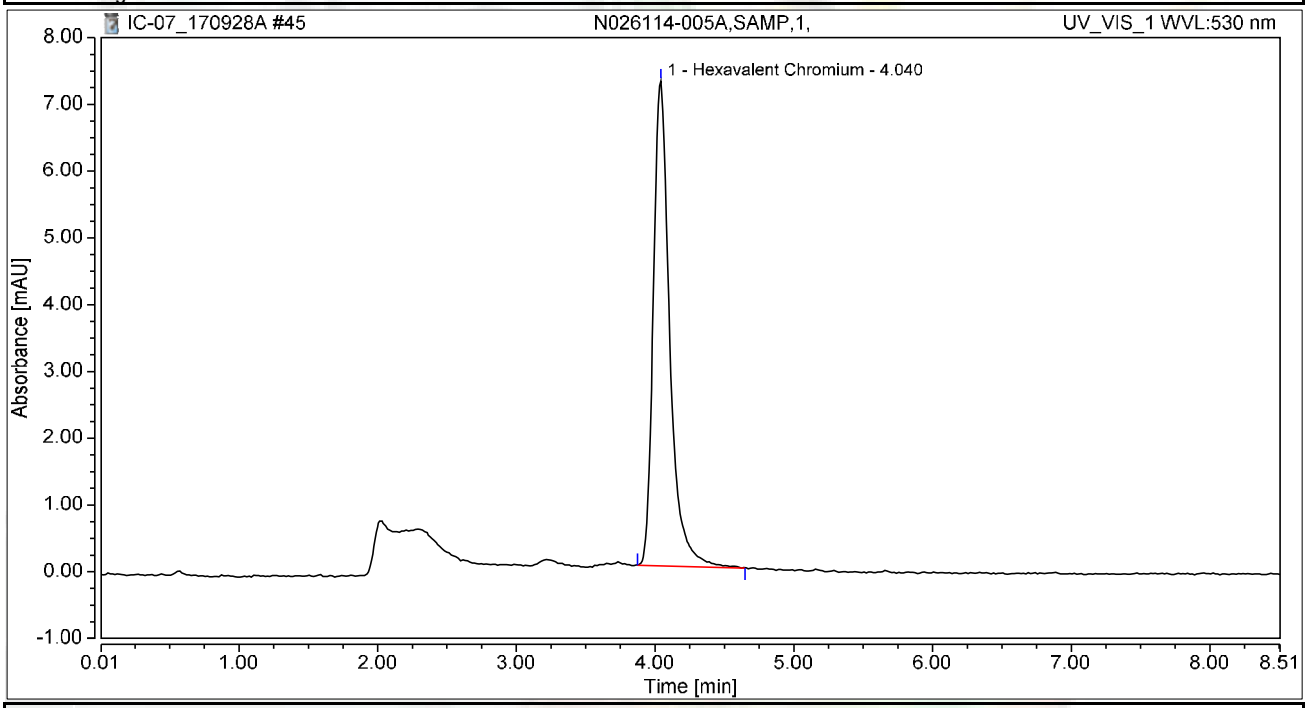
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.110	23.050	100.00	100.00	11.9842
Total:			**3.110**	**23.050**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

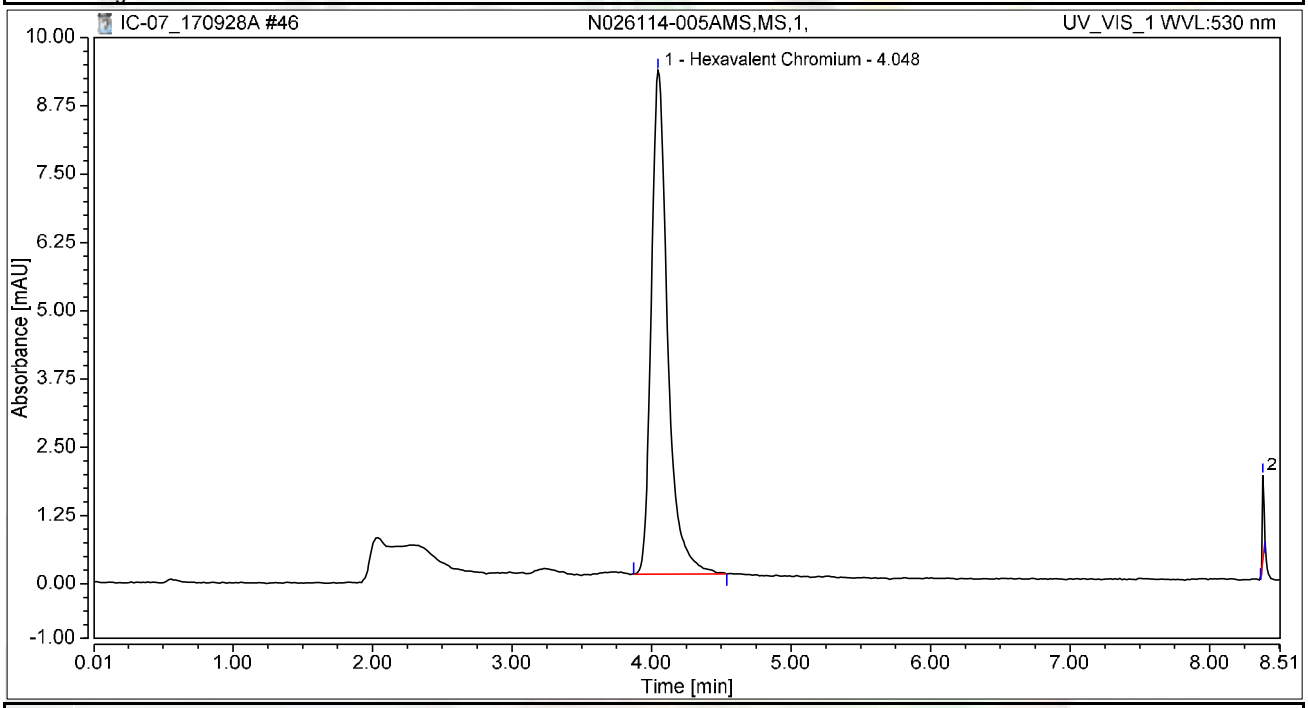
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.996	7.262	100.00	100.00	3.8383
Total:			**0.996**	**7.262**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 02:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

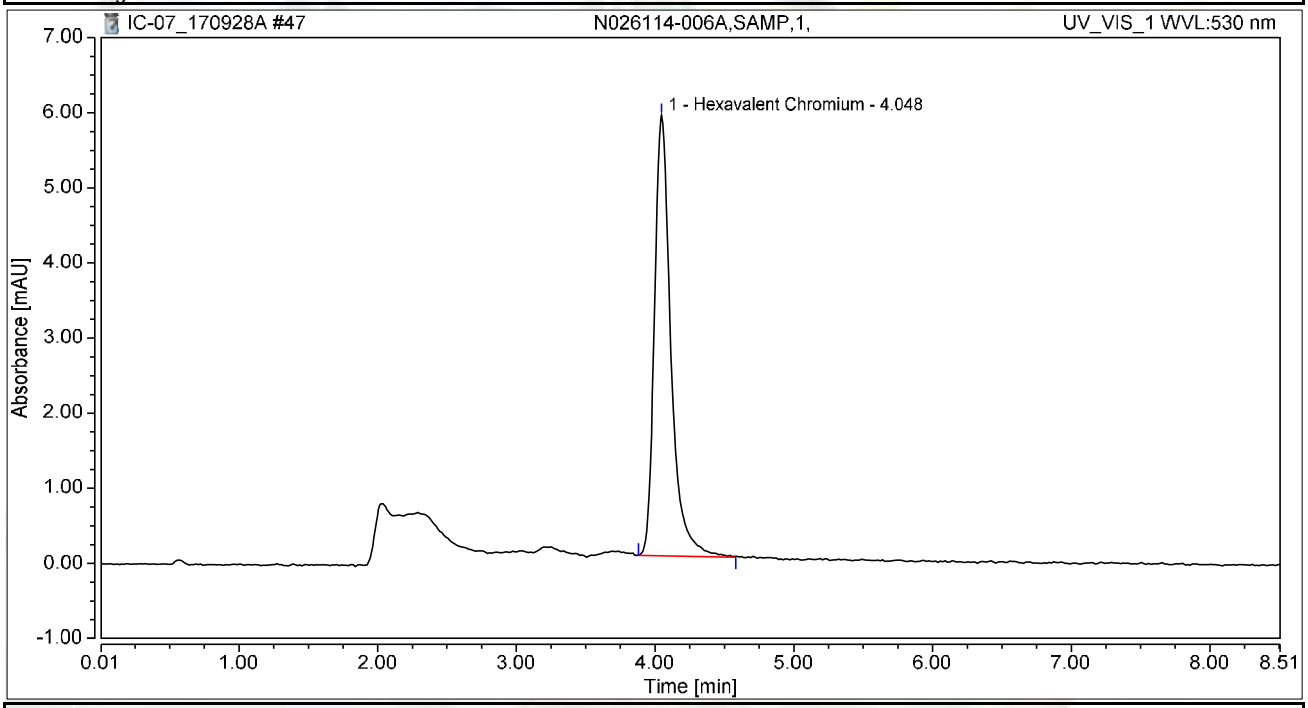
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.256	9.216	98.49	85.54	4.8375
2		8.381	0.019	1.558	1.51	14.46	n.a.
Total:			**1.275**	**10.774**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

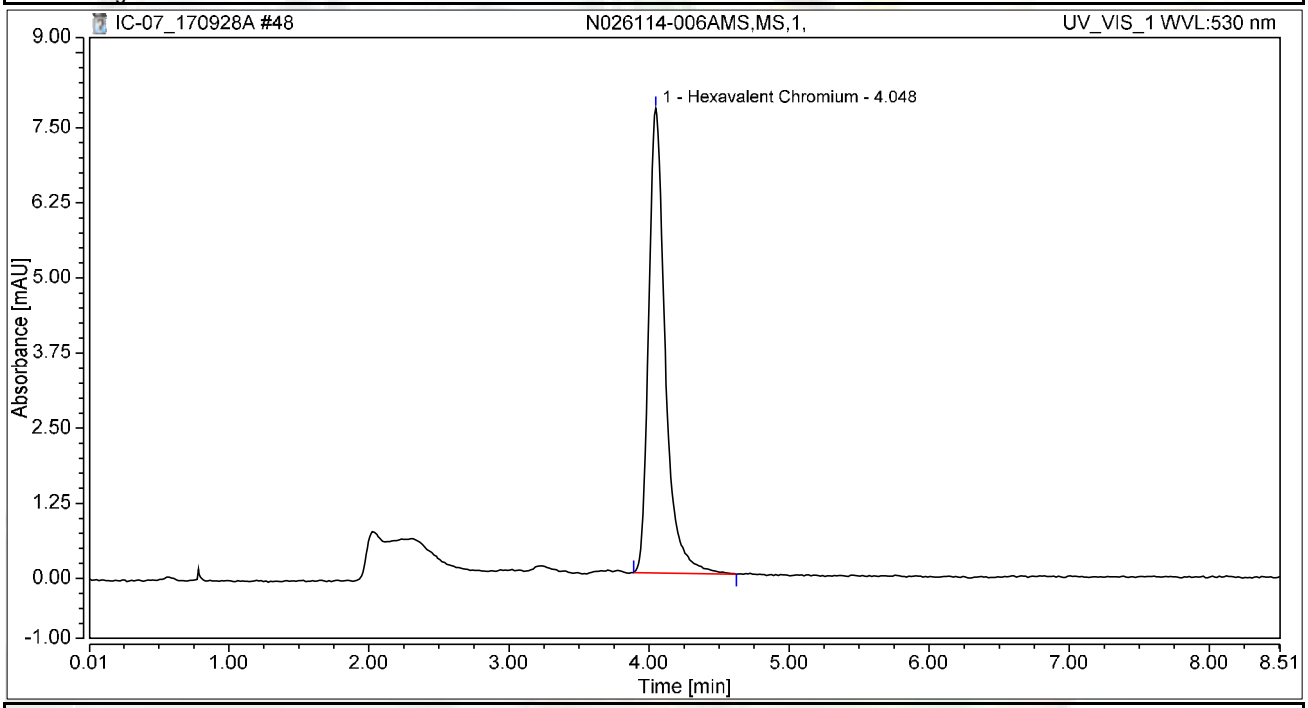
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.805	5.863	100.00	100.00	3.1014
Total:			**0.805**	**5.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

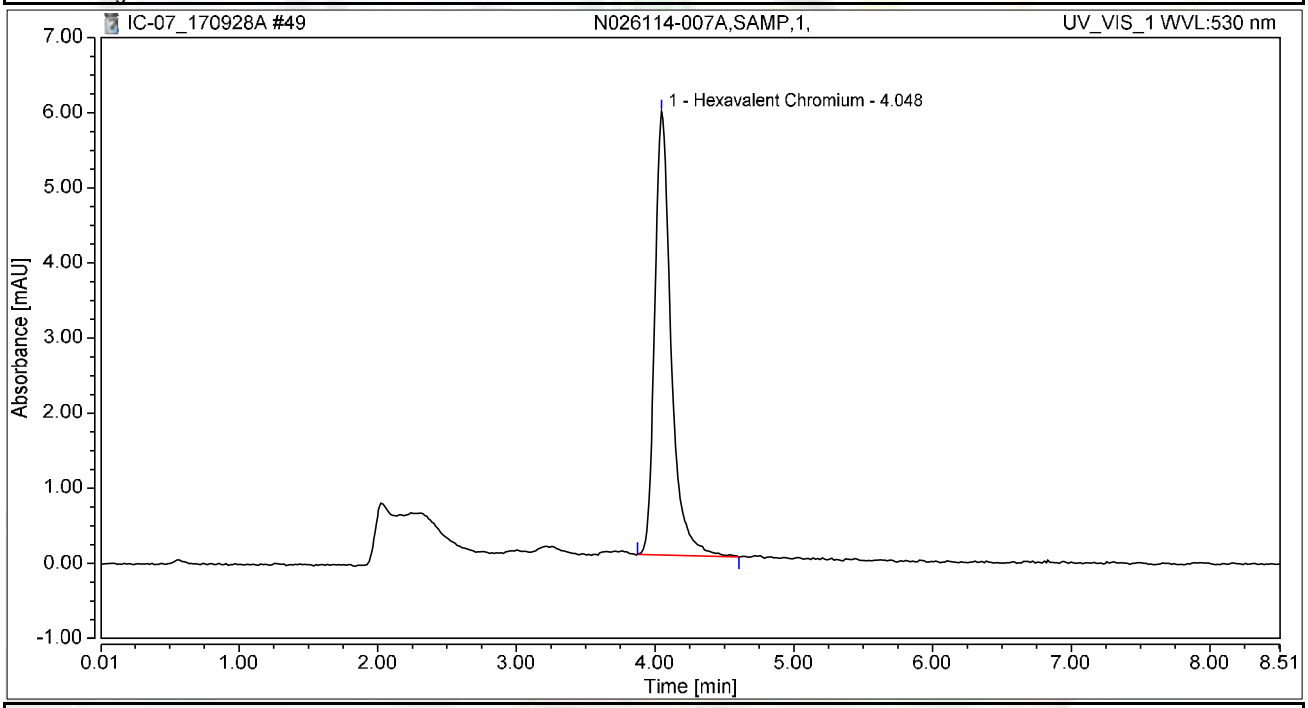
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.064	7.735	100.00	100.00	4.0999
Total:			**1.064**	**7.735**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

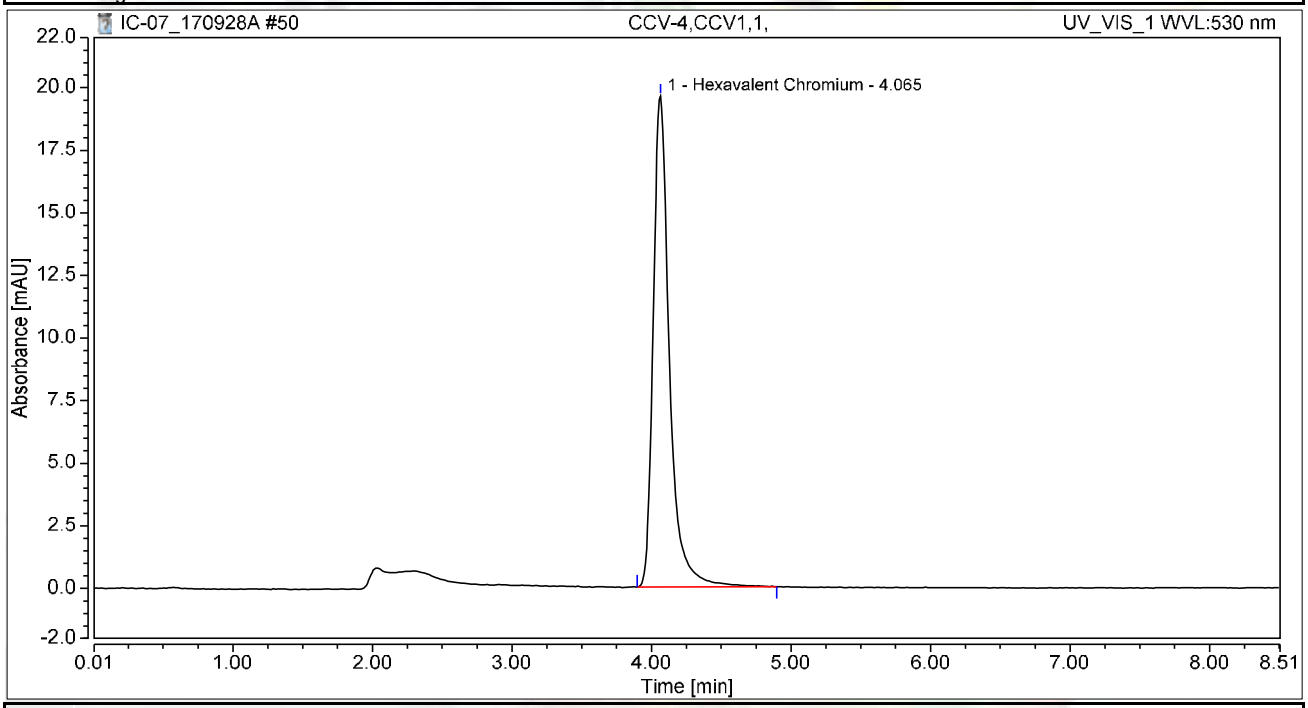
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.807	5.904	100.00	100.00	3.1096
Total:			**0.807**	**5.904**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

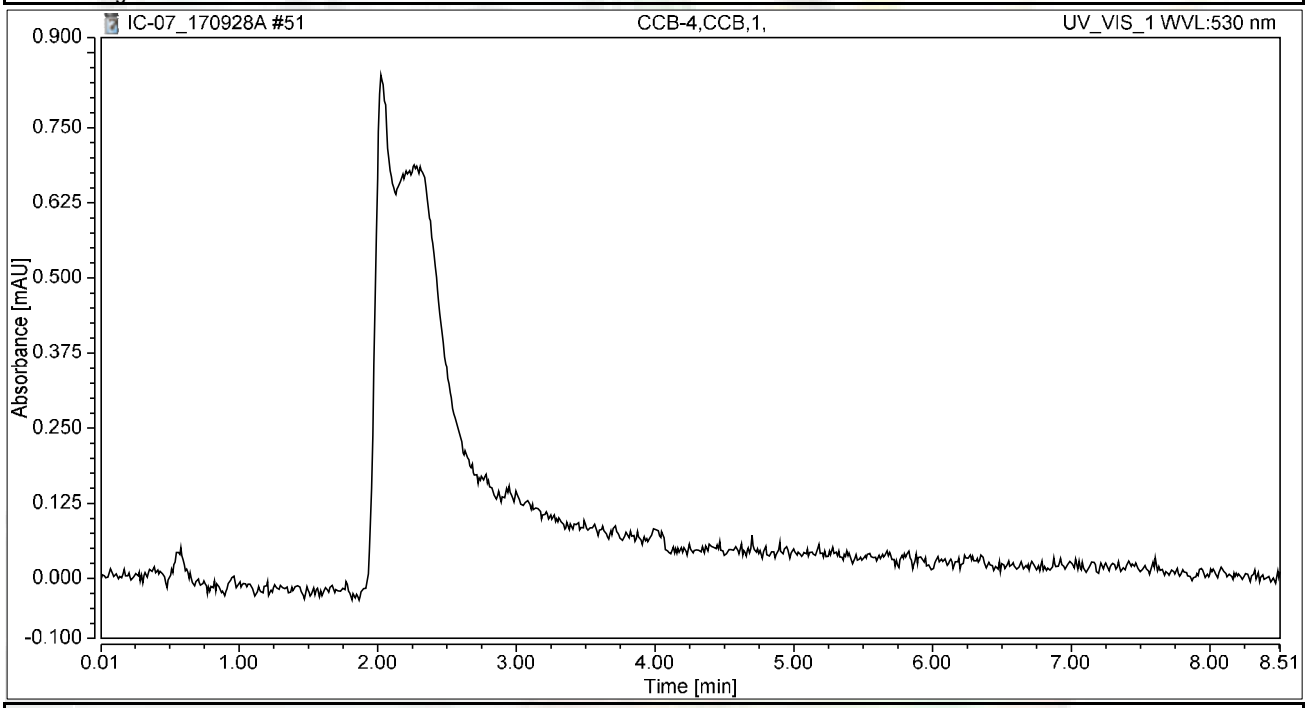
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.639	19.610	100.00	100.00	10.1660
Total:			**2.639**	**19.610**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

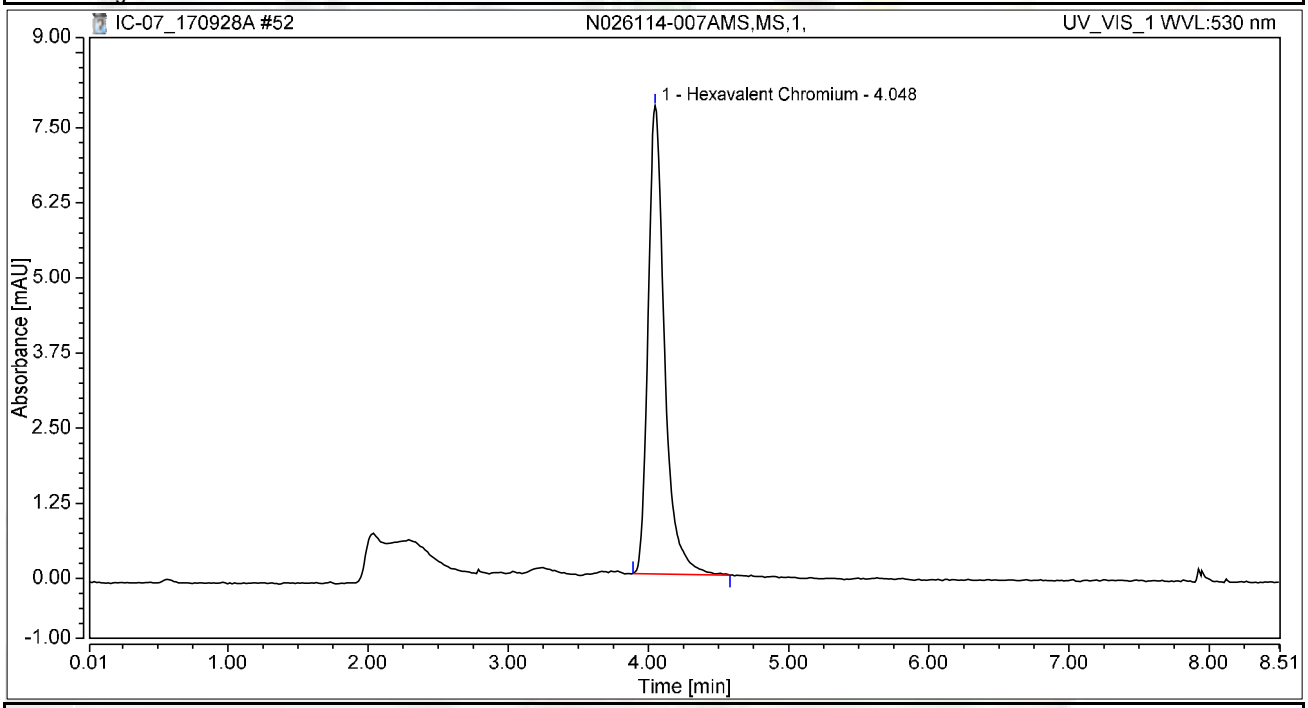
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-007AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 03:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

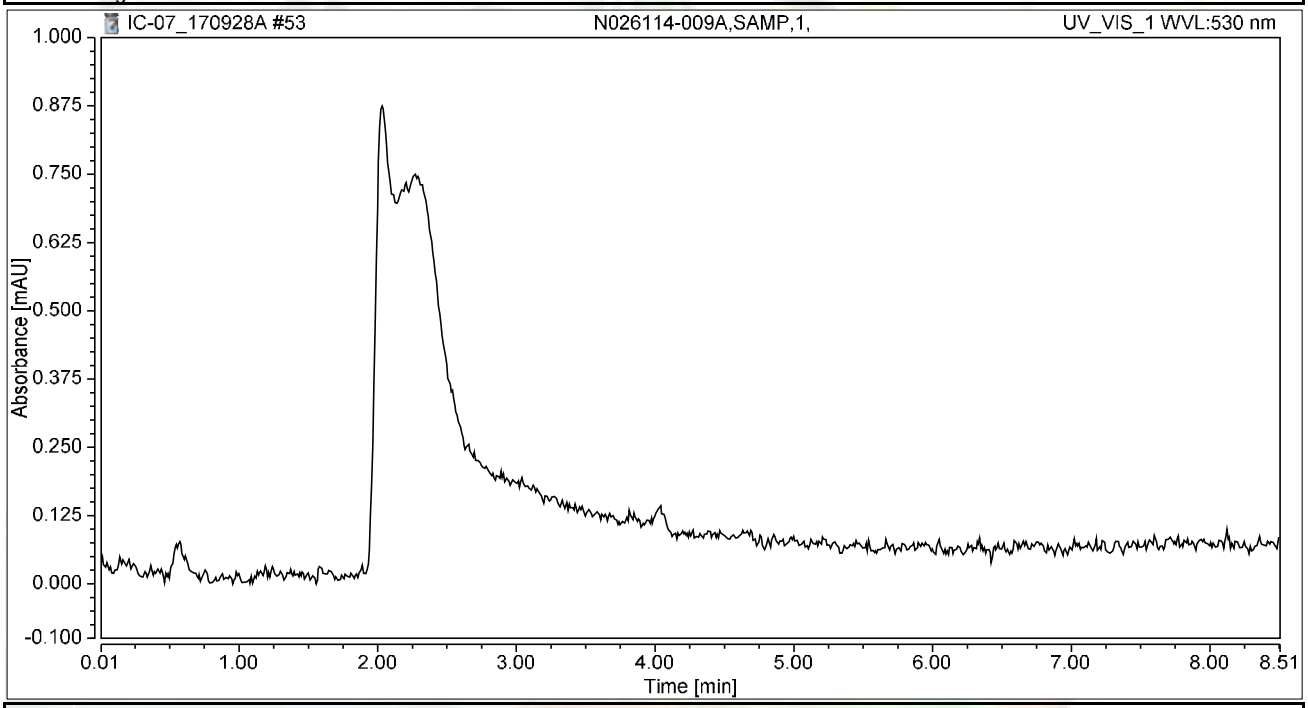
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.059	7.792	100.00	100.00	4.0813
Total:			**1.059**	**7.792**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-009A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

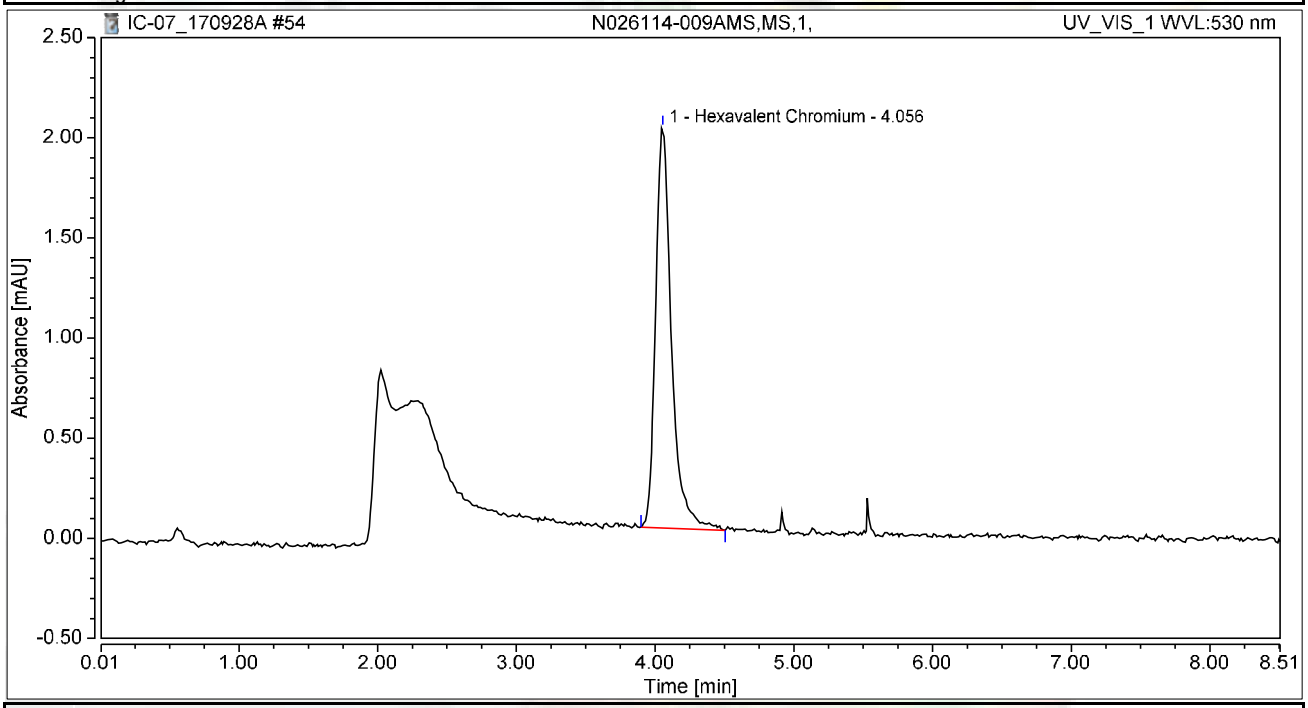
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-009AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

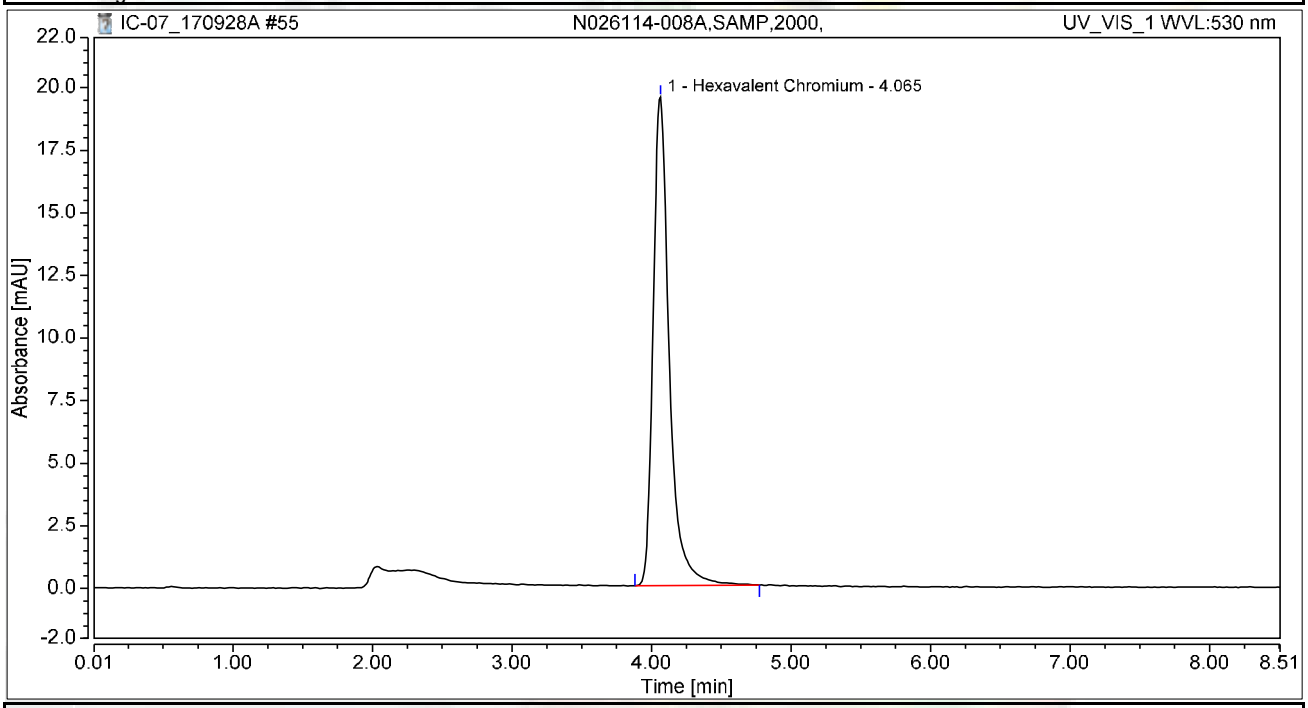
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.265	1.998	100.00	100.00	1.0197
Total:			**0.265**	**1.998**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-008A,SAMP,2000,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

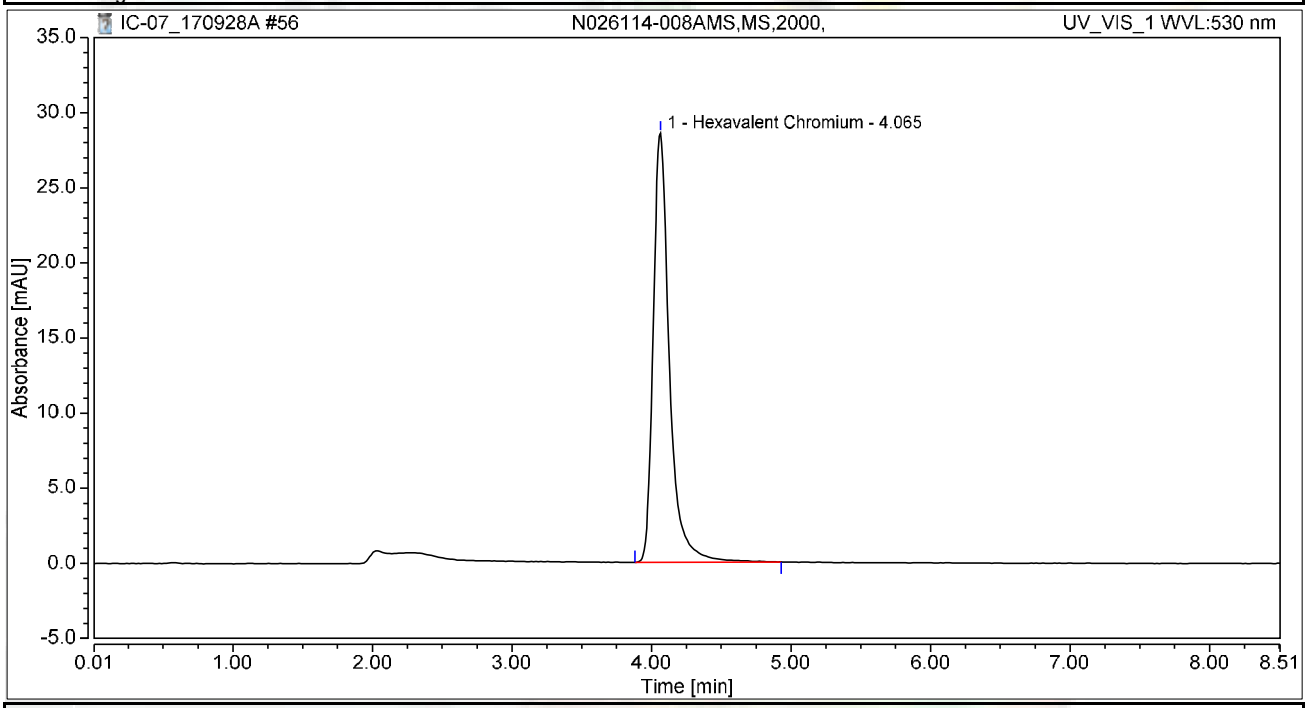
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.618	19.508	100.00	100.00	10.0885
Total:			**2.618**	**19.508**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026114-008AMS,MS,2000,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

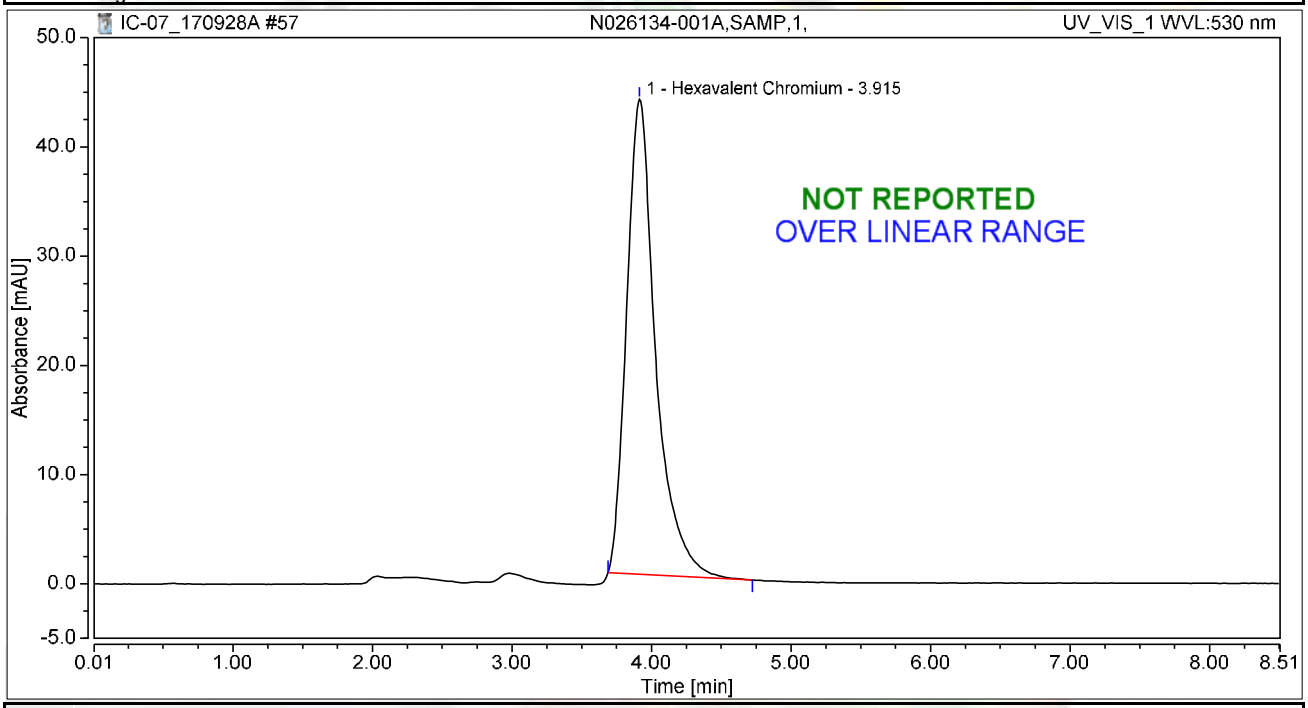
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	3.850	28.568	100.00	100.00	14.8335
Total:			**3.850**	**28.568**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

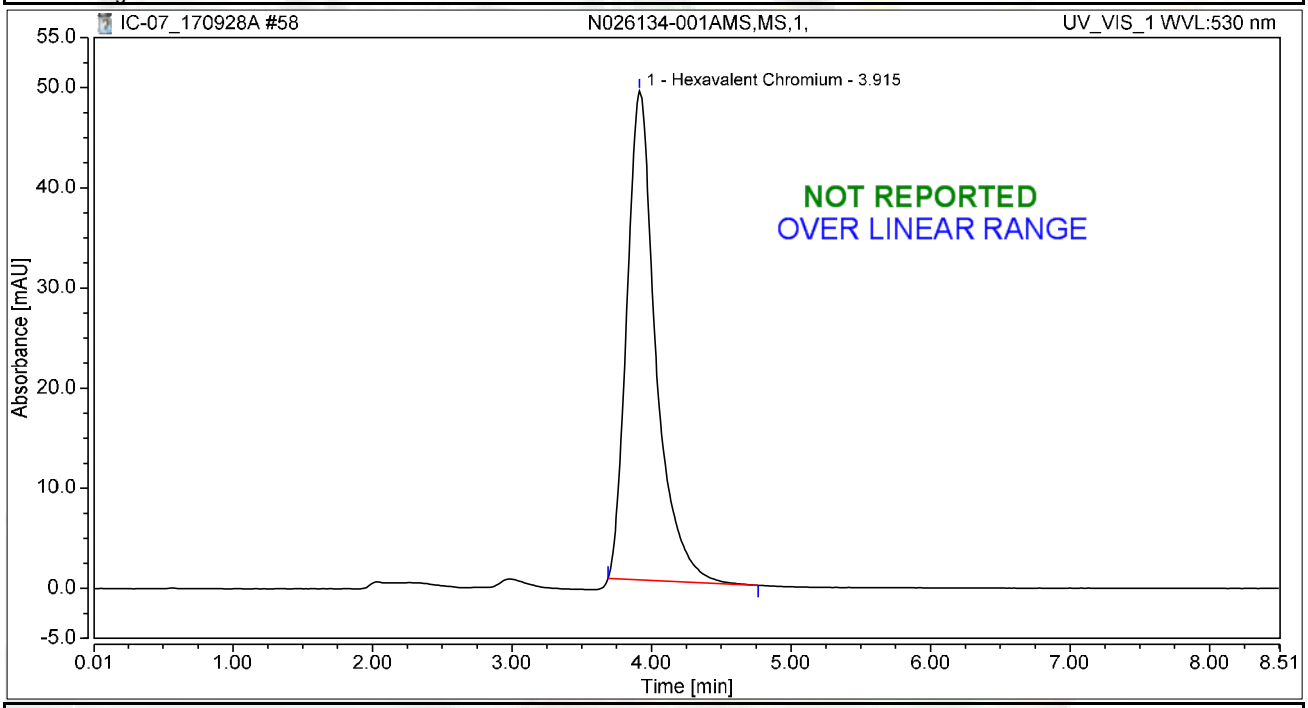
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.915	10.469	43.458	100.00	100.00	40.3348
Total:			**10.469**	**43.458**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 04:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

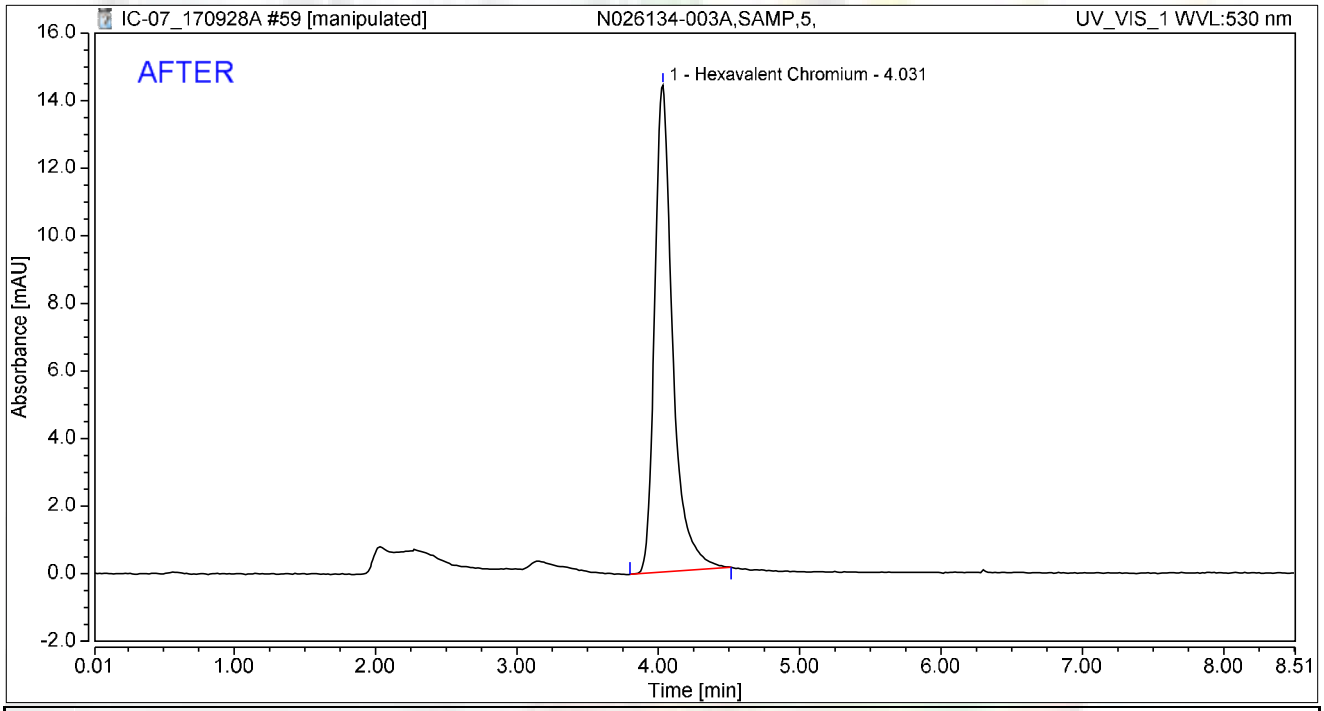
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.915	11.757	48.815	100.00	100.00	45.2976
Total:			**11.757**	**48.815**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	2.136	14.405	100.00	100.00	8.2284
Total:			**2.136**	**14.405**	**100.00**	**100.00**	

rba 10/5/2017

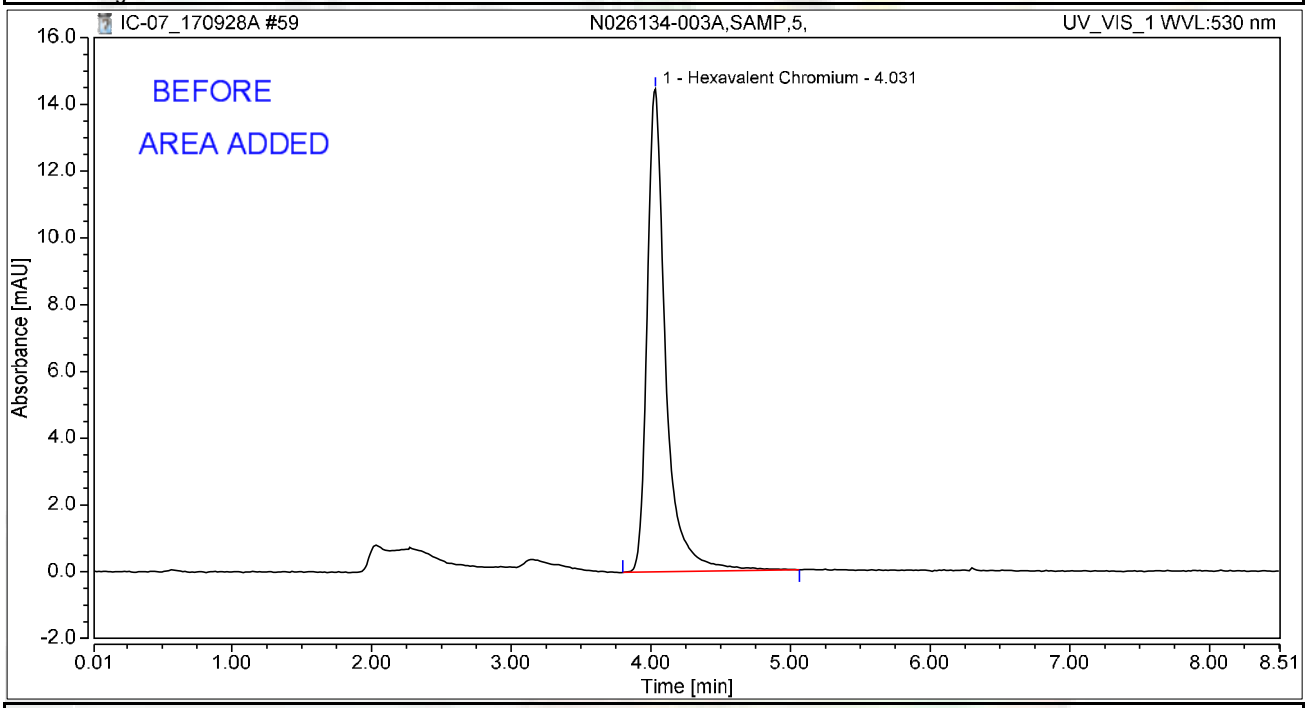
Reviewed by: Dmy 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	2.231	14.459	100.00	100.00	8.5943
Total:			**2.231**	**14.459**	**100.00**	**100.00**	

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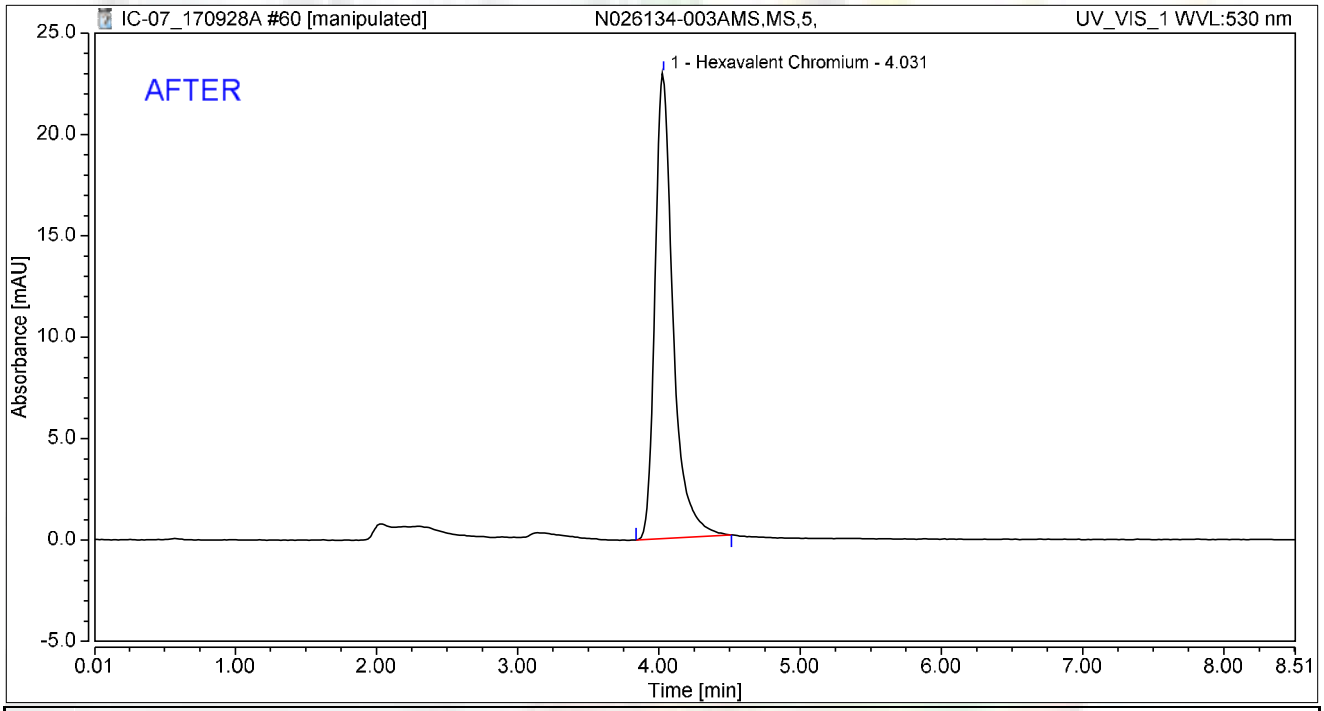
Chromatogram and Results

Injection Details

Injection Name:	**N026134-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	3.407	22.949	100.00	100.00	13.1287
Total:			**3.407**	**22.949**	**100.00**	**100.00**	

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Reviewed by: My first report/Integration 10/10/2017

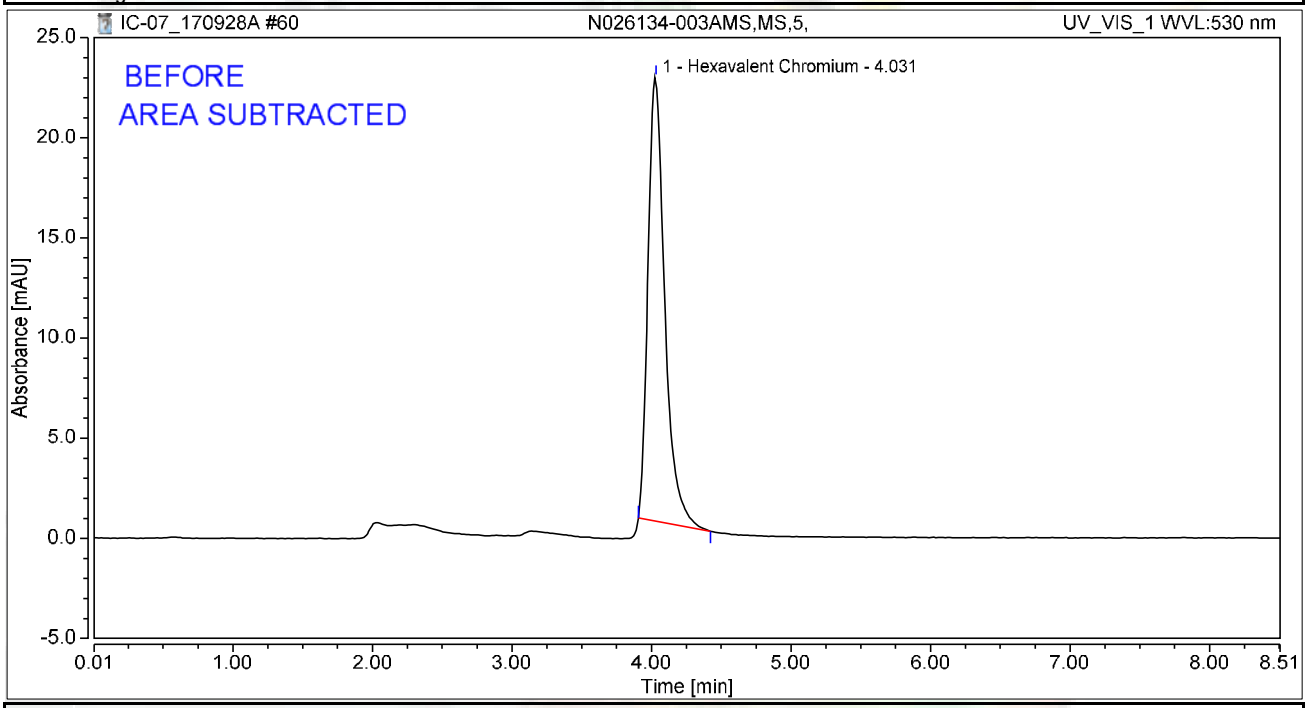
Chromeleon (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	3.089	22.150	100.00	100.00	11.9004
Total:			**3.089**	**22.150**	**100.00**	**100.00**	

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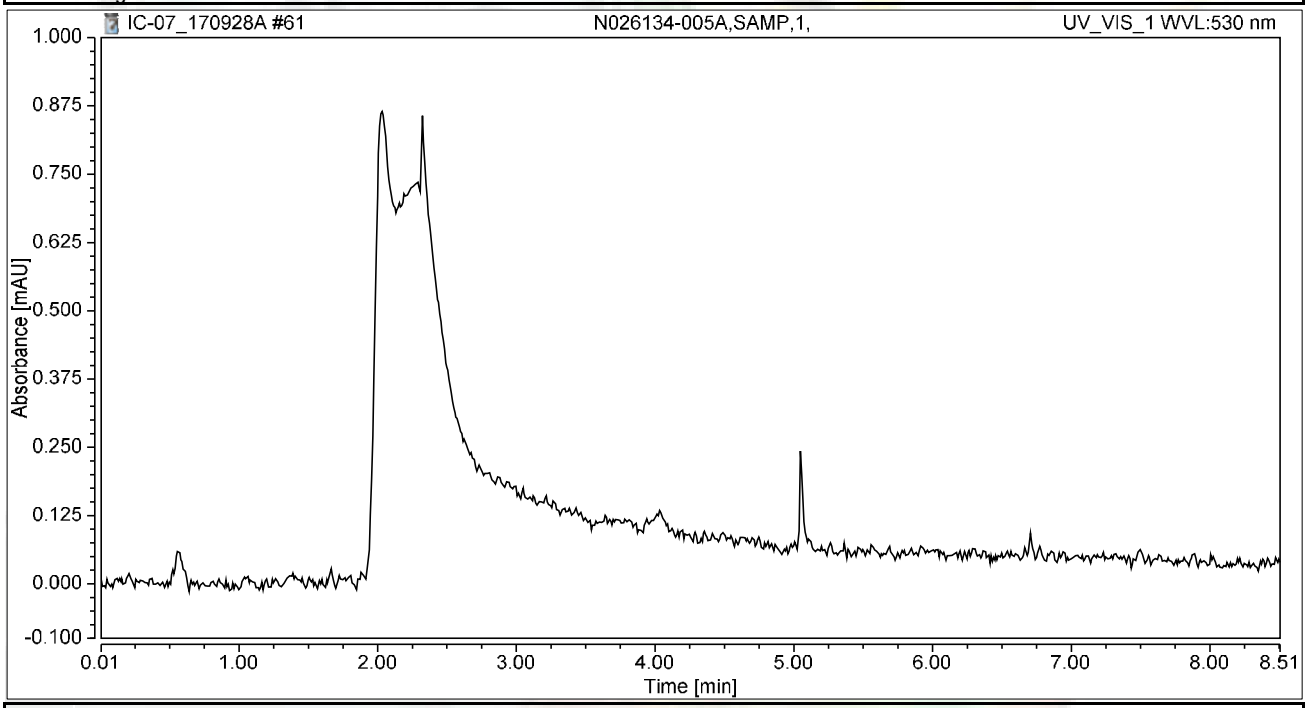
Chromatogram and Results

Injection Details

Injection Name:	**N026134-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

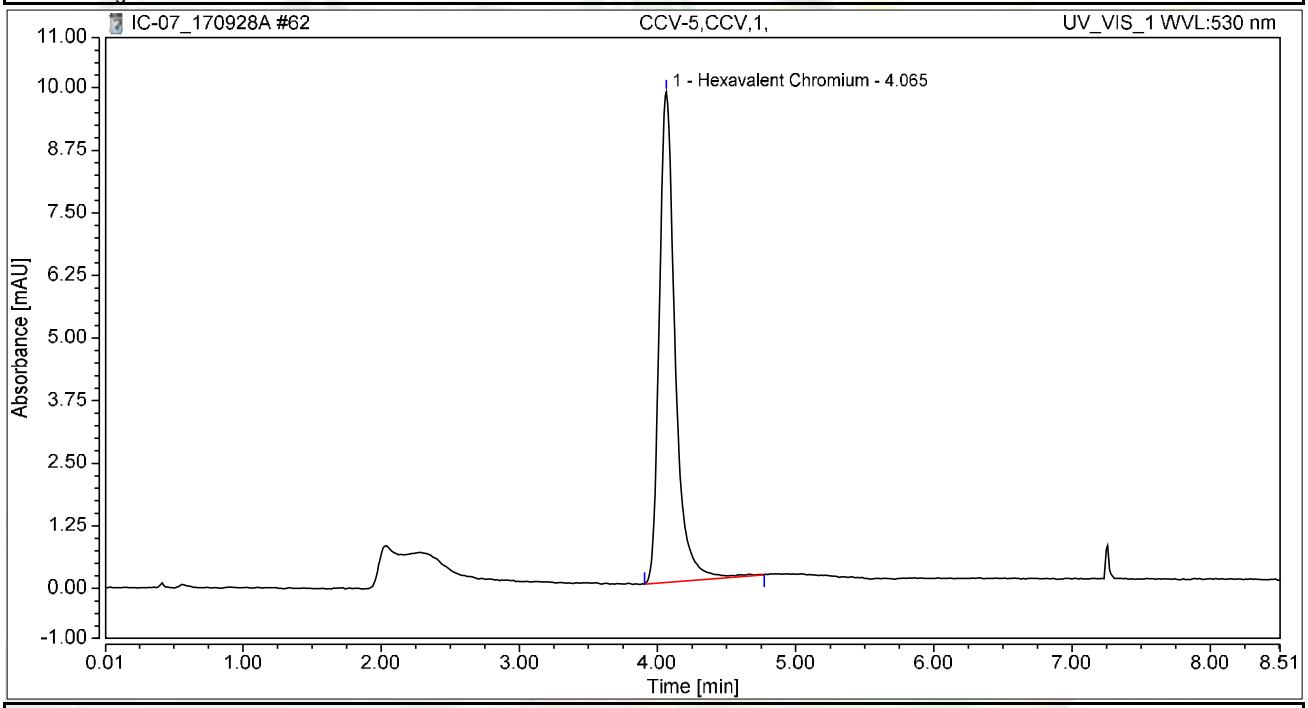
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

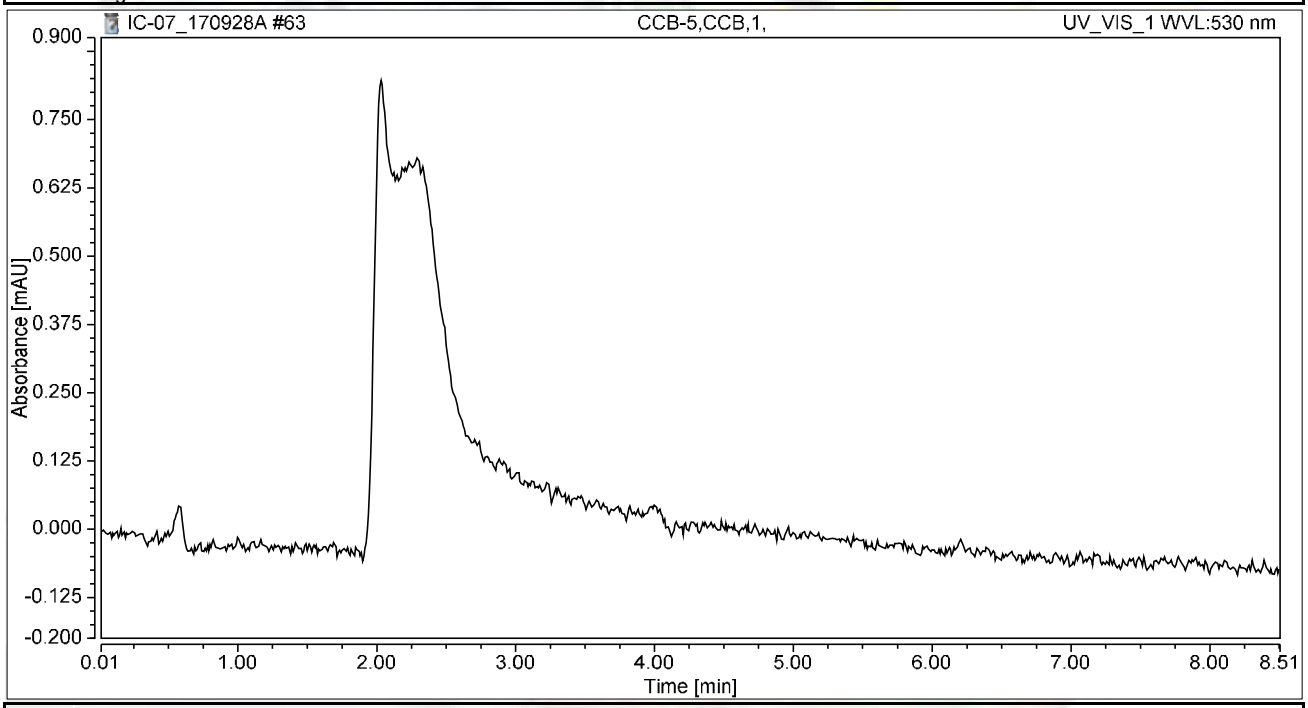
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.304	9.803	100.00	100.00	5.0228
Total:			**1.304**	**9.803**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

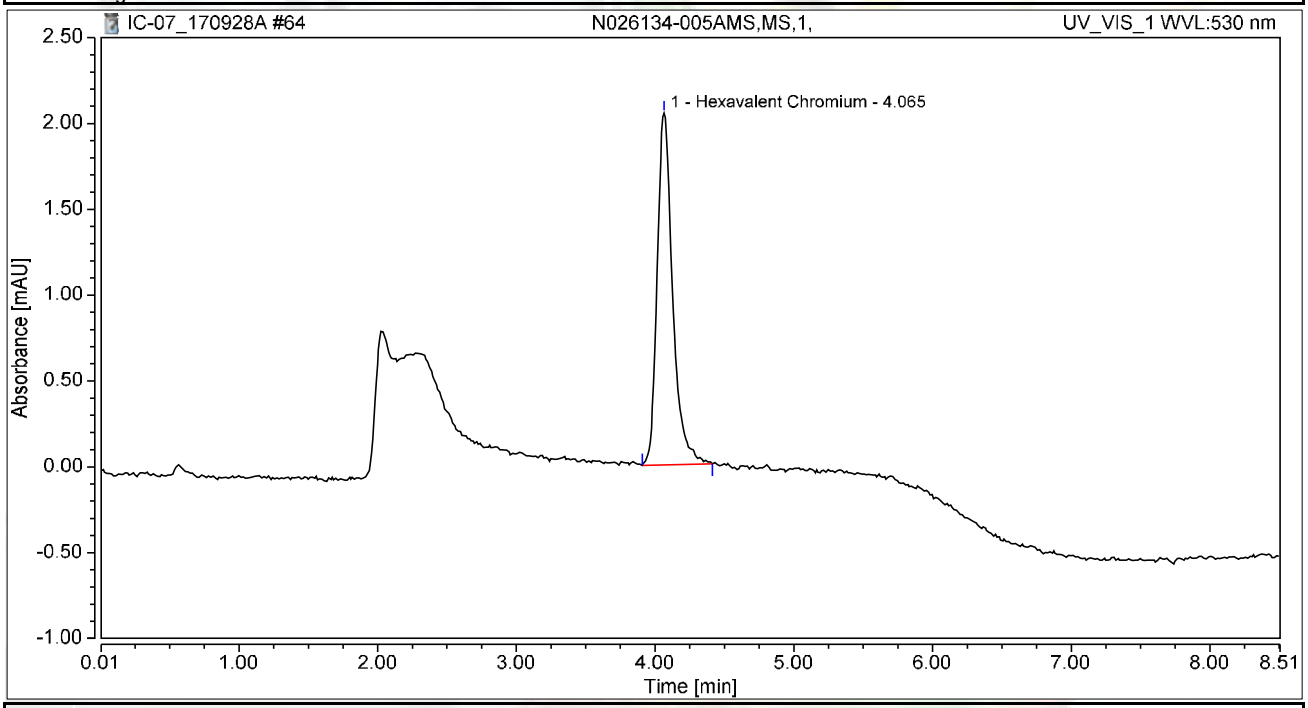
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

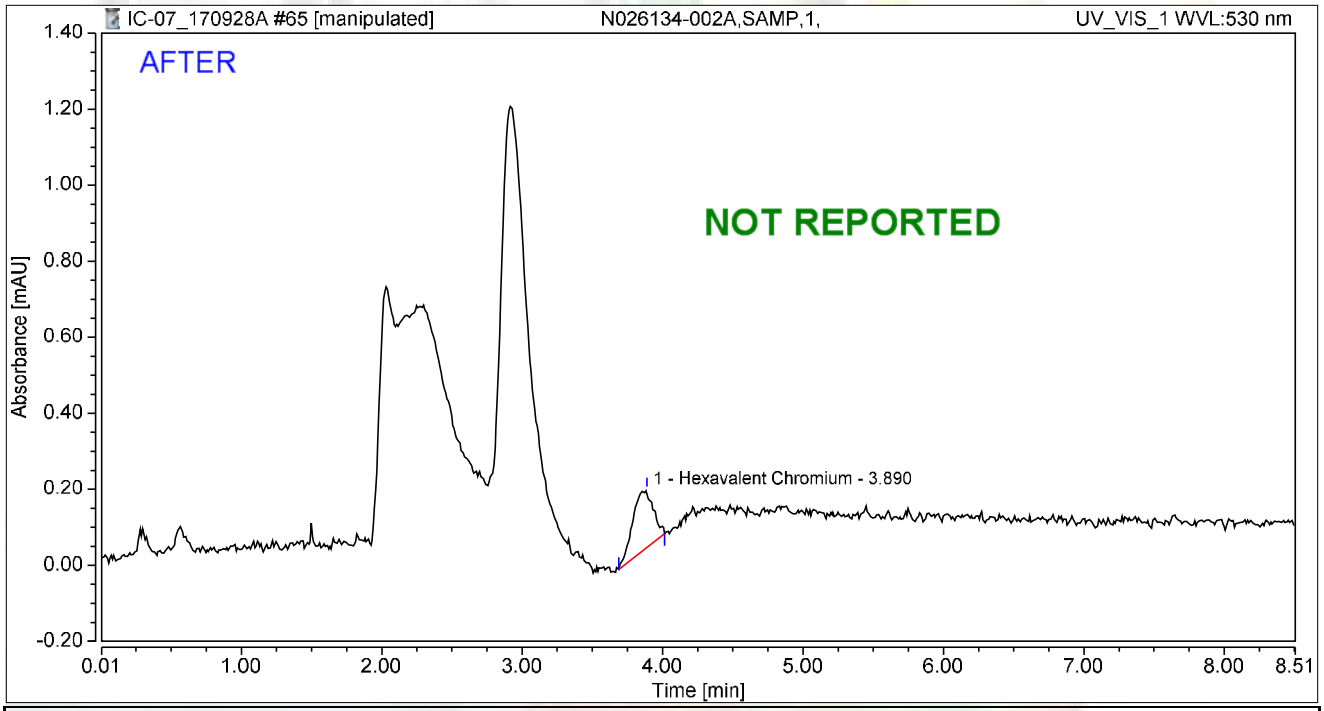
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.266	2.051	100.00	100.00	1.0231
Total:			**0.266**	**2.051**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.890	0.027	0.152	100.00	100.00	0.1042
Total:			**0.027**	**0.152**	**100.00**	**100.00**	

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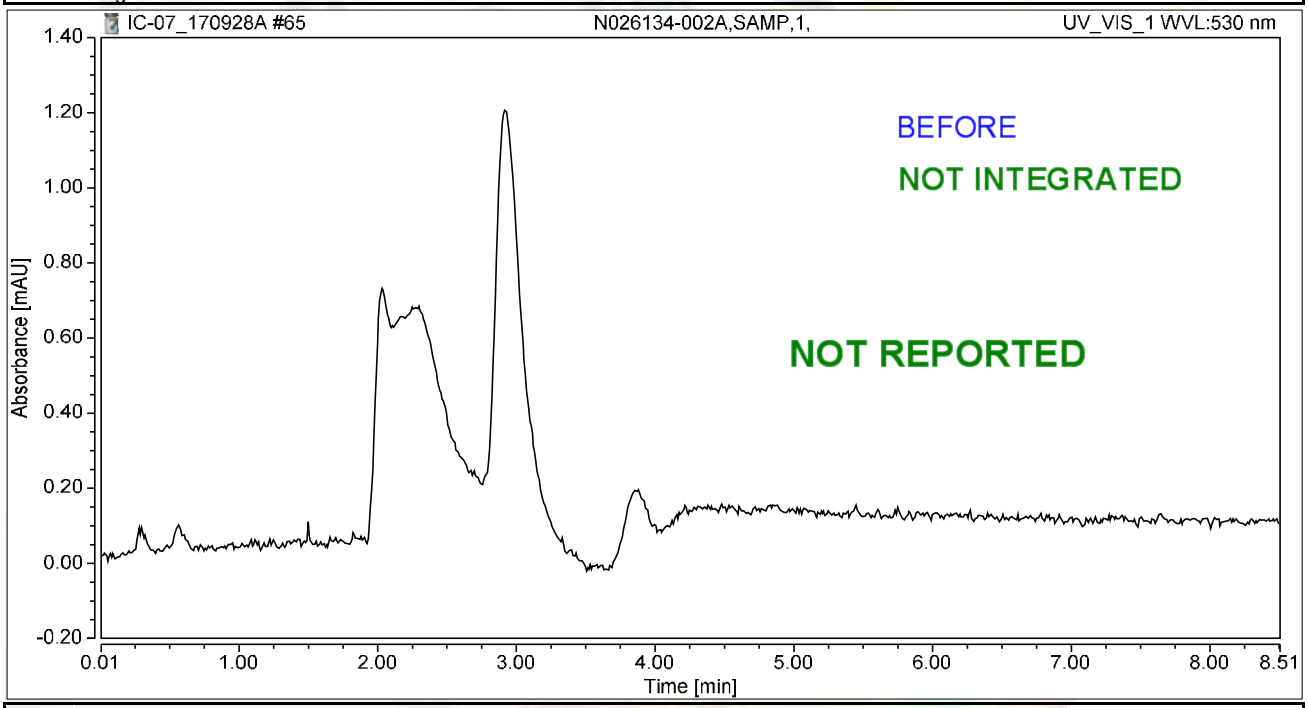
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 05:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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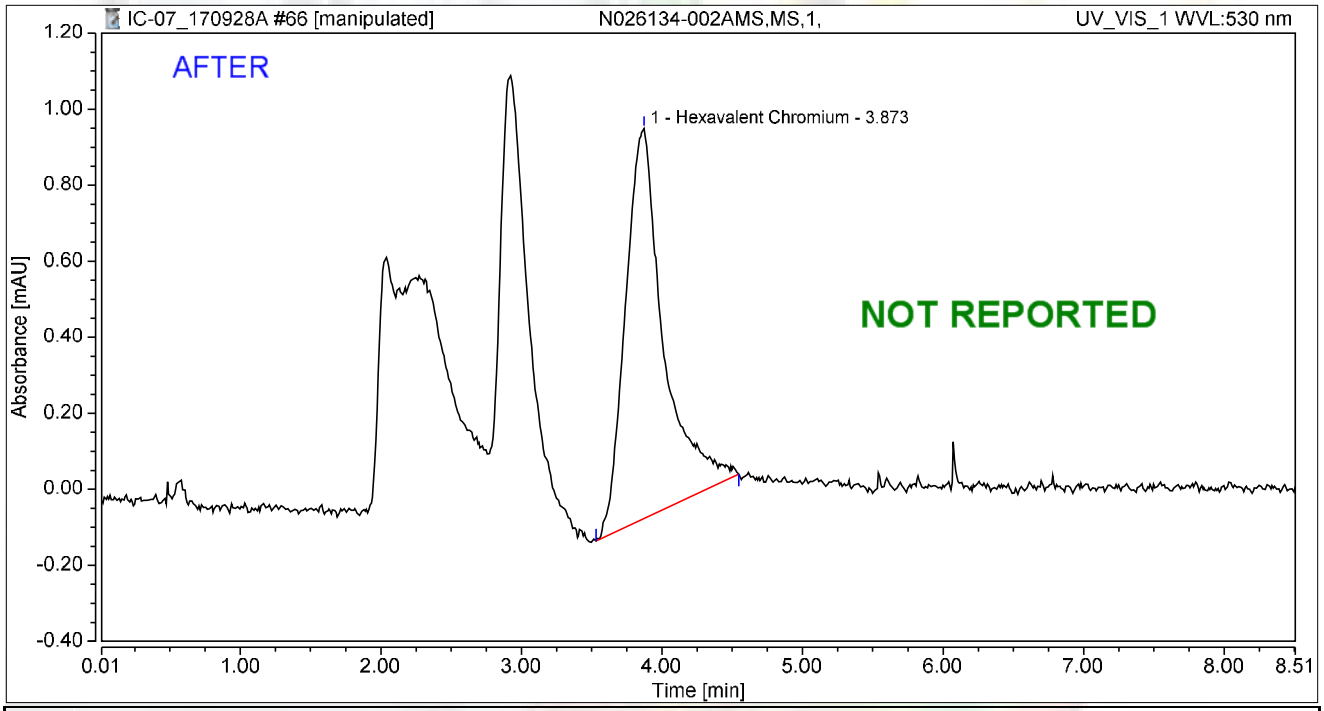
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.873	0.325	1.026	100.00	100.00	1.2514
Total:			**0.325**	**1.026**	**100.00**	**100.00**	

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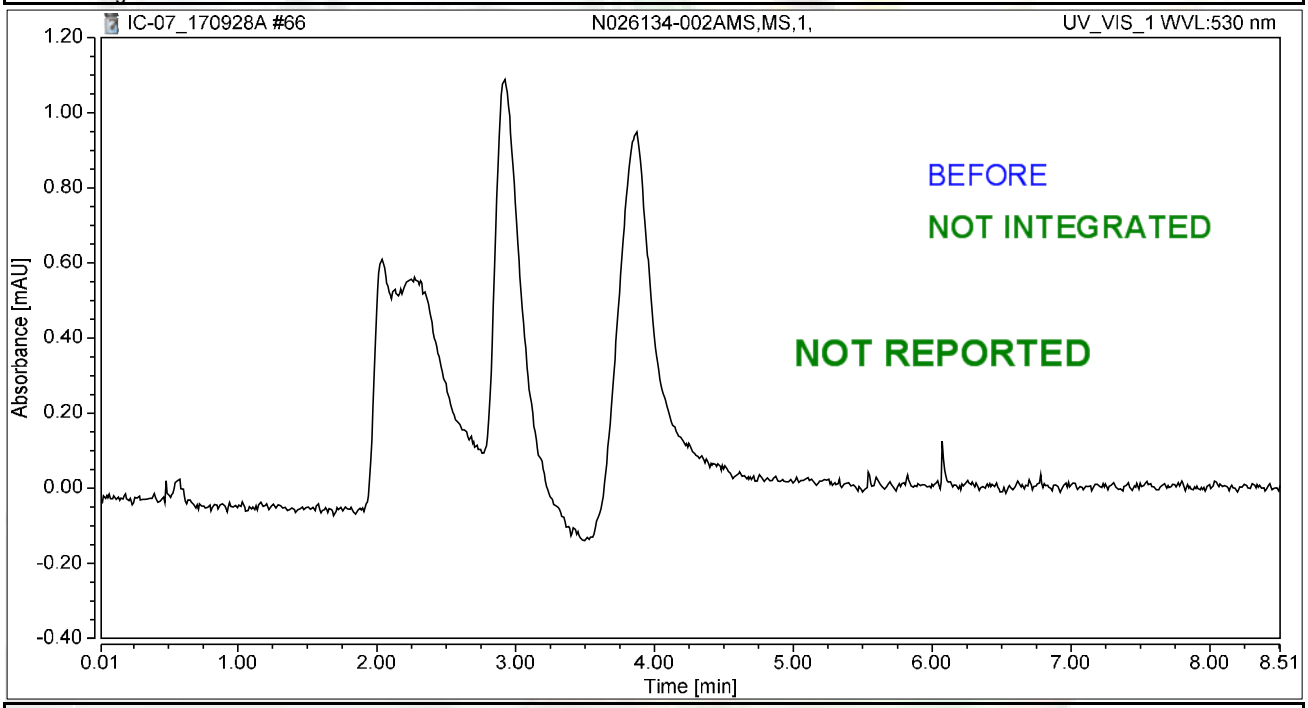
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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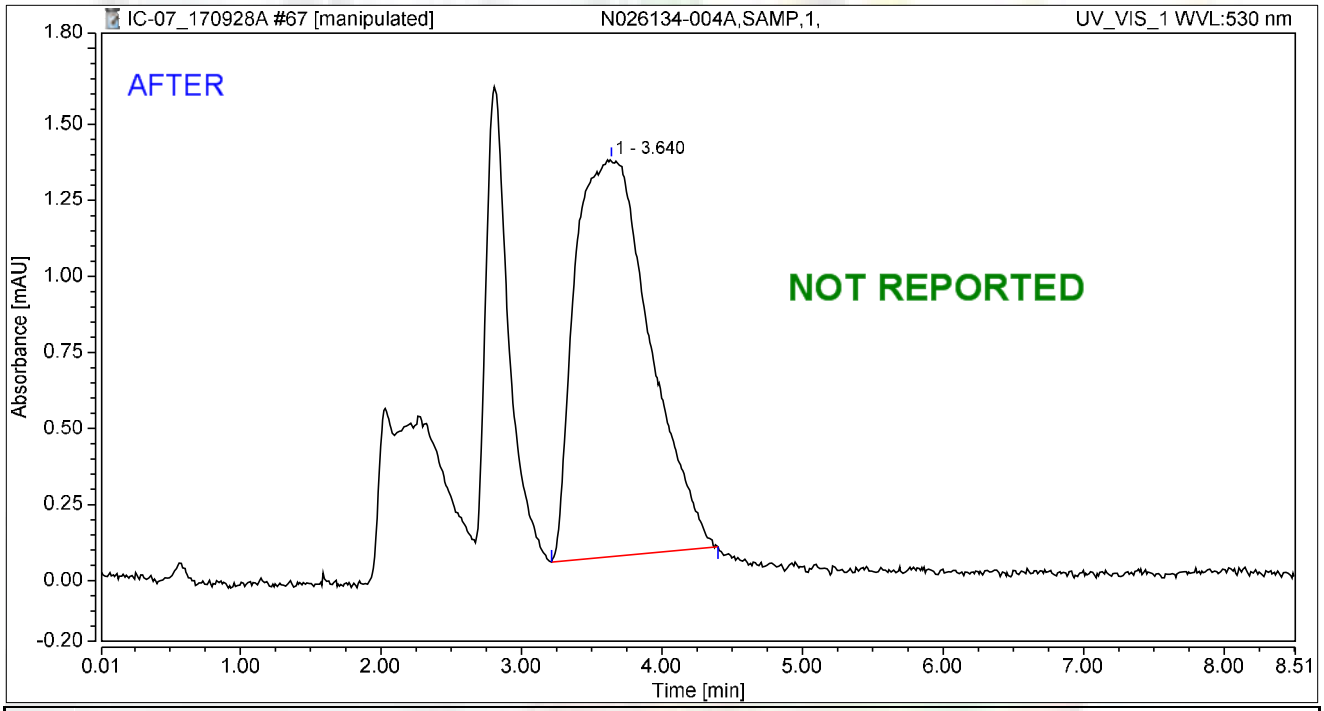
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.640	0.806	1.306	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.806**	**1.306**	**100.00**	**100.00**	

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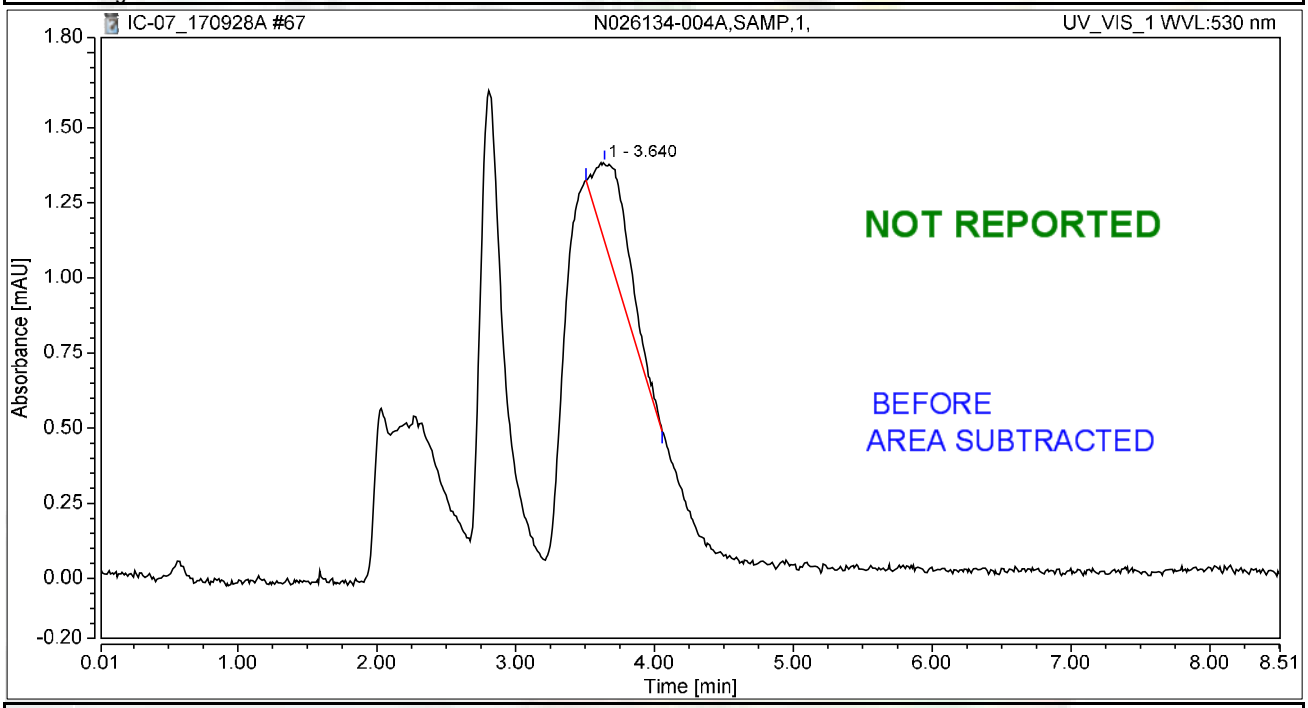
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.640	0.090	0.261	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.090**	**0.261**	**100.00**	**100.00**	

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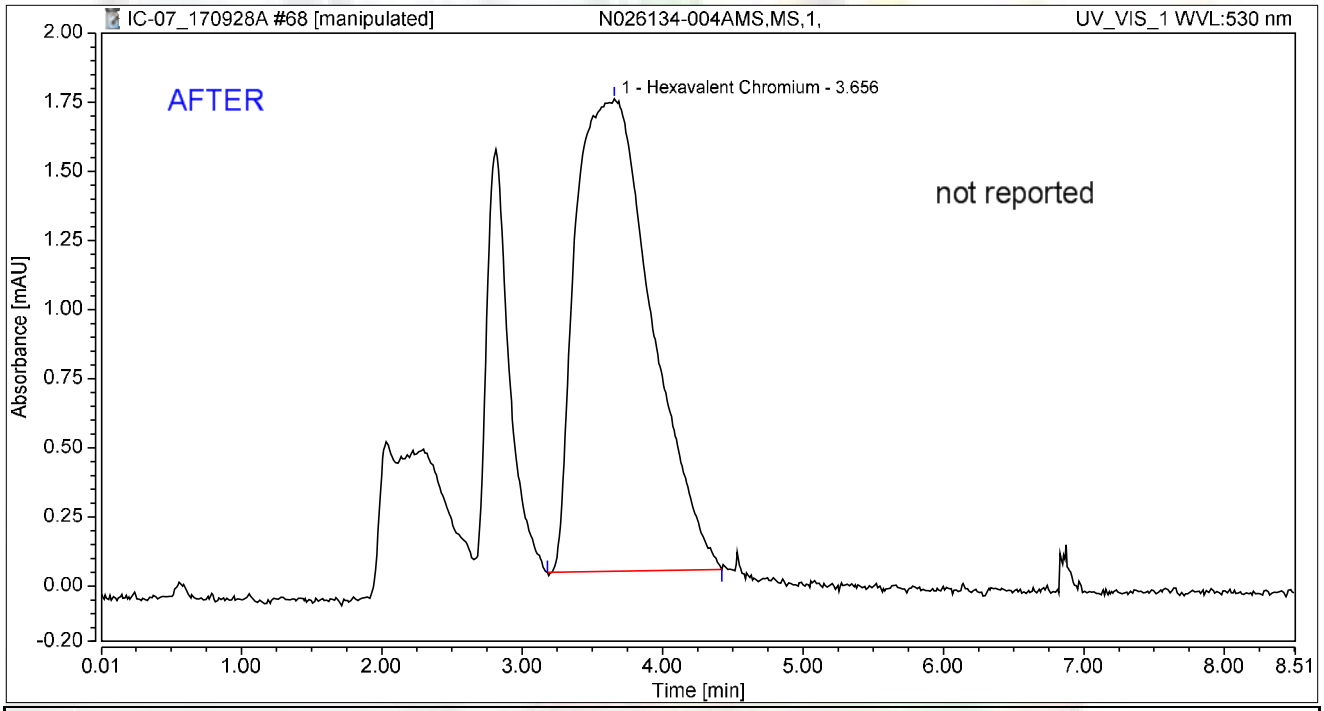
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.656	1.070	1.708	100.00	100.00	4.1208
Total:			**1.070**	**1.708**	**100.00**	**100.00**	

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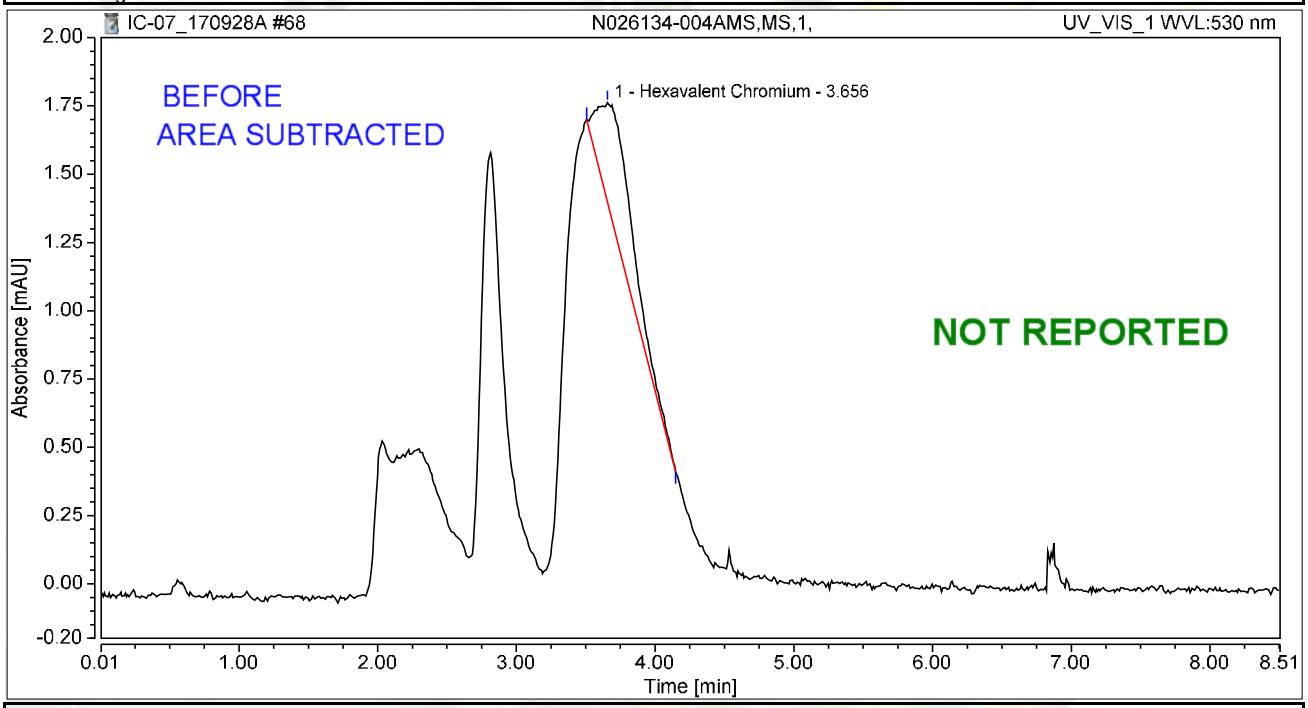
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.656	0.116	0.363	100.00	100.00	0.4484
Total:			**0.116**	**0.363**	**100.00**	**100.00**	

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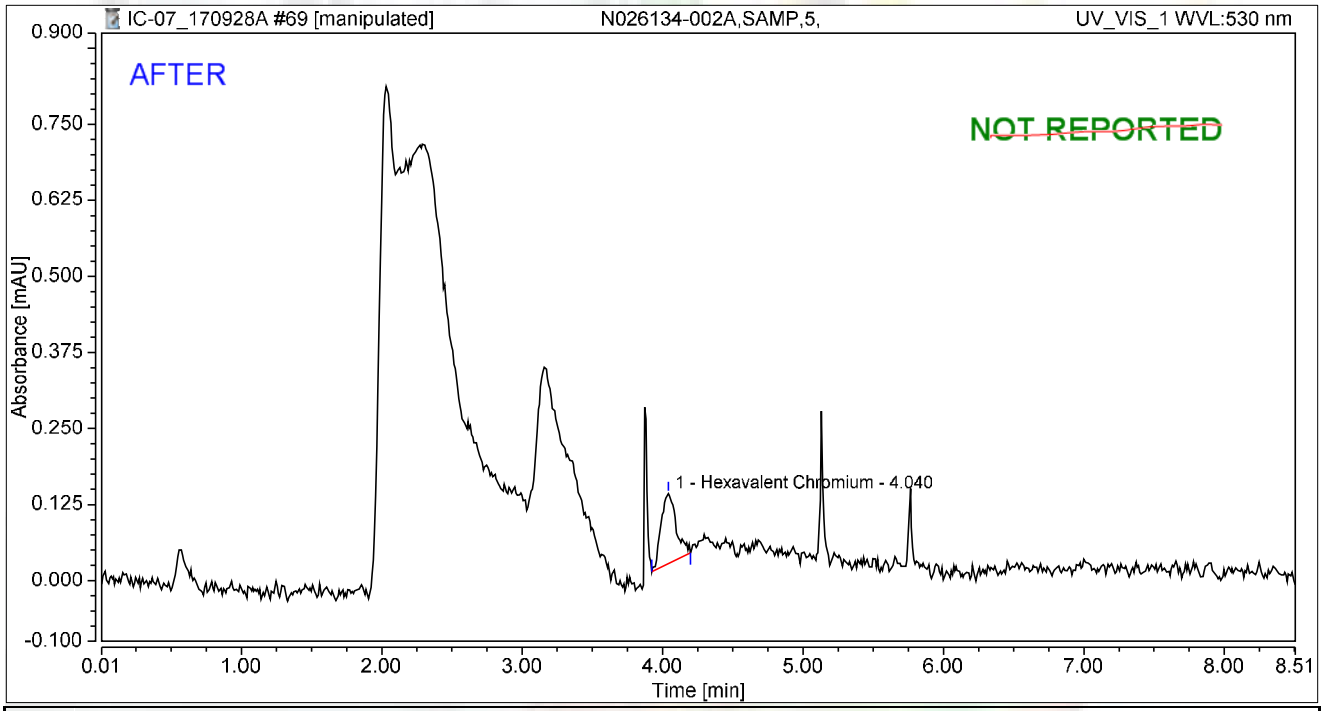
Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

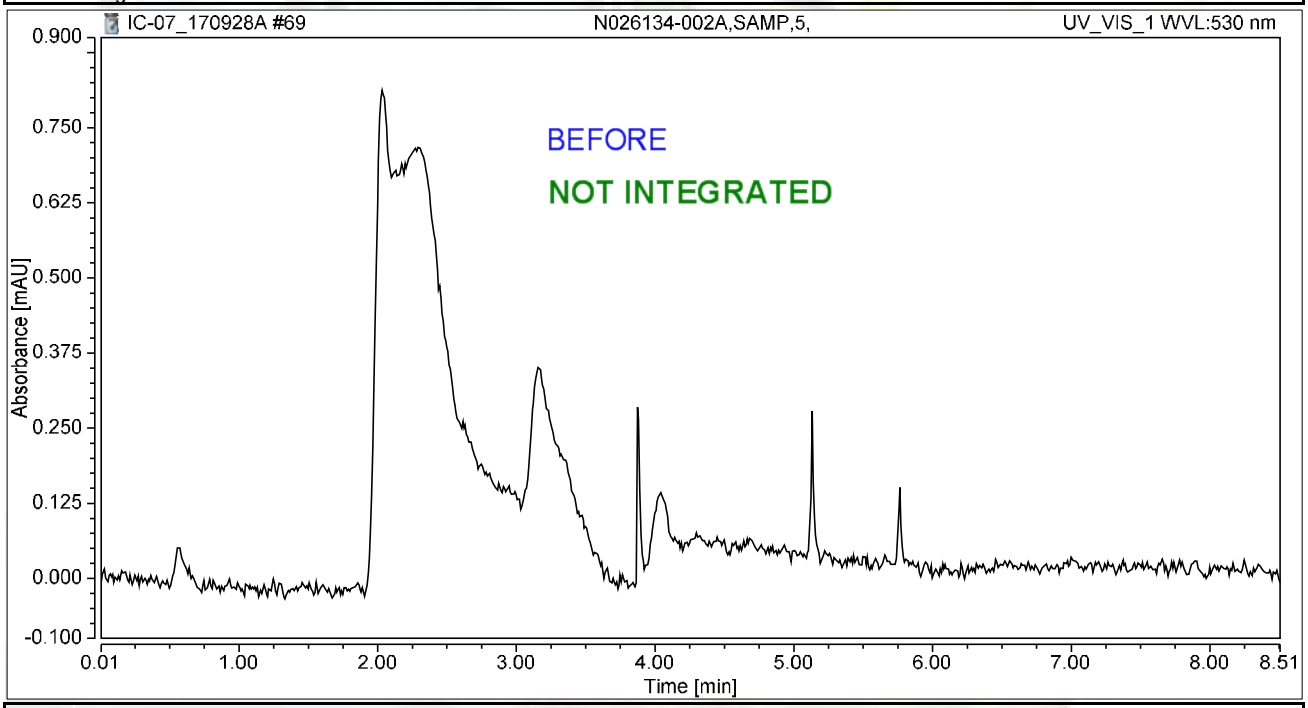
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.014	0.115	100.00	100.00	0.0553
Total:			**0.014**	**0.115**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

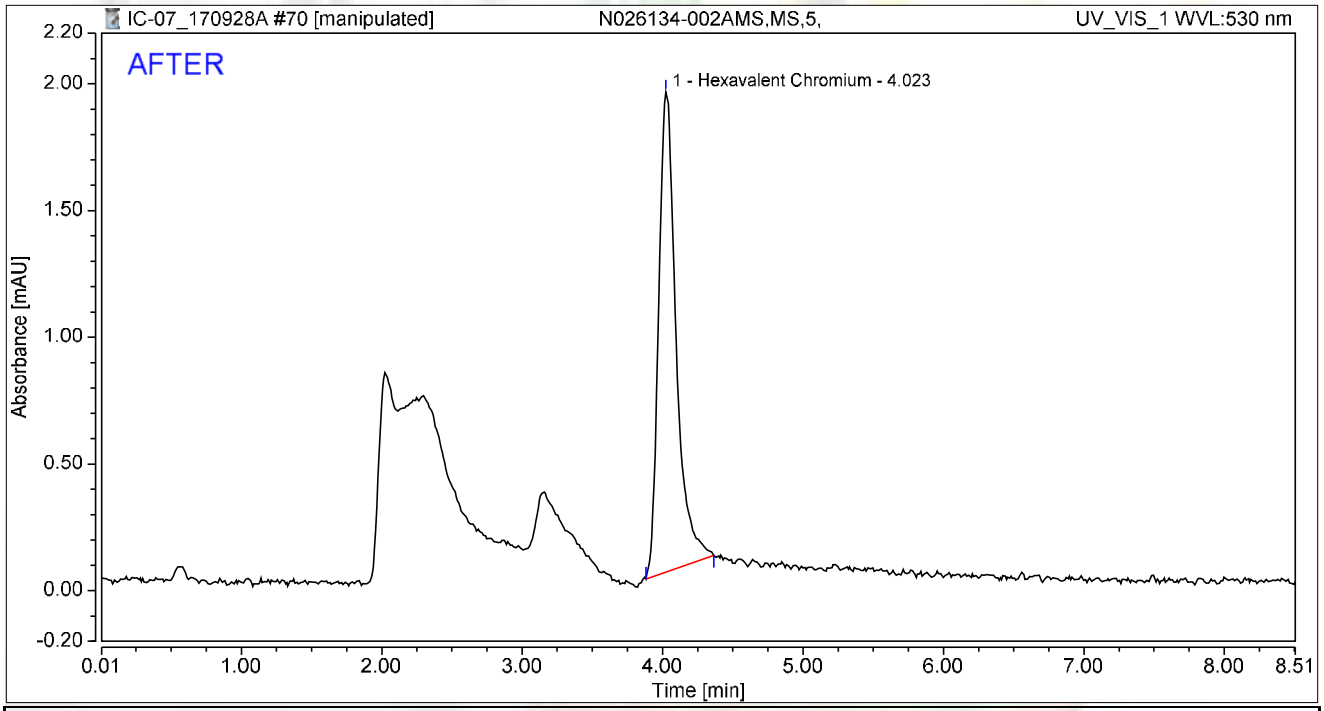
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.273	1.895	100.00	100.00	1.0536
Total:			**0.273**	**1.895**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: 10/10/2017

My first report integration

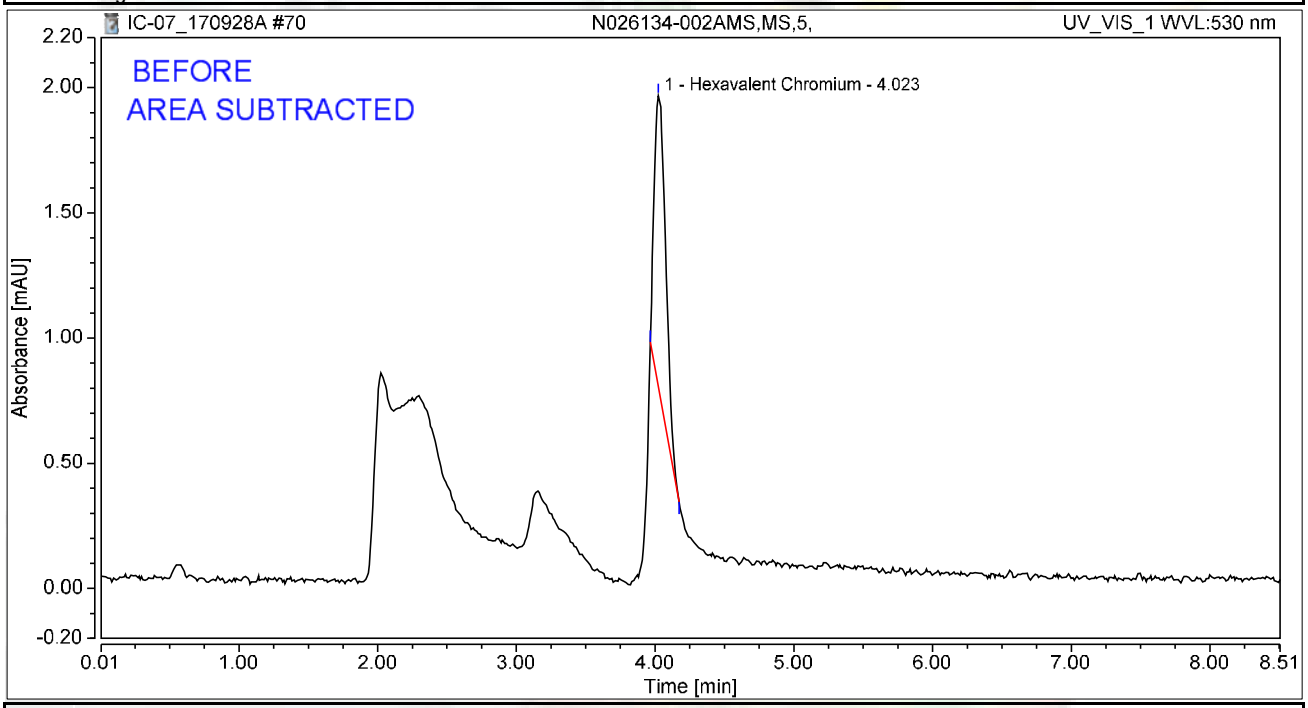
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-002AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.113	1.163	100.00	100.00	0.4369
Total:			**0.113**	**1.163**	**100.00**	**100.00**	

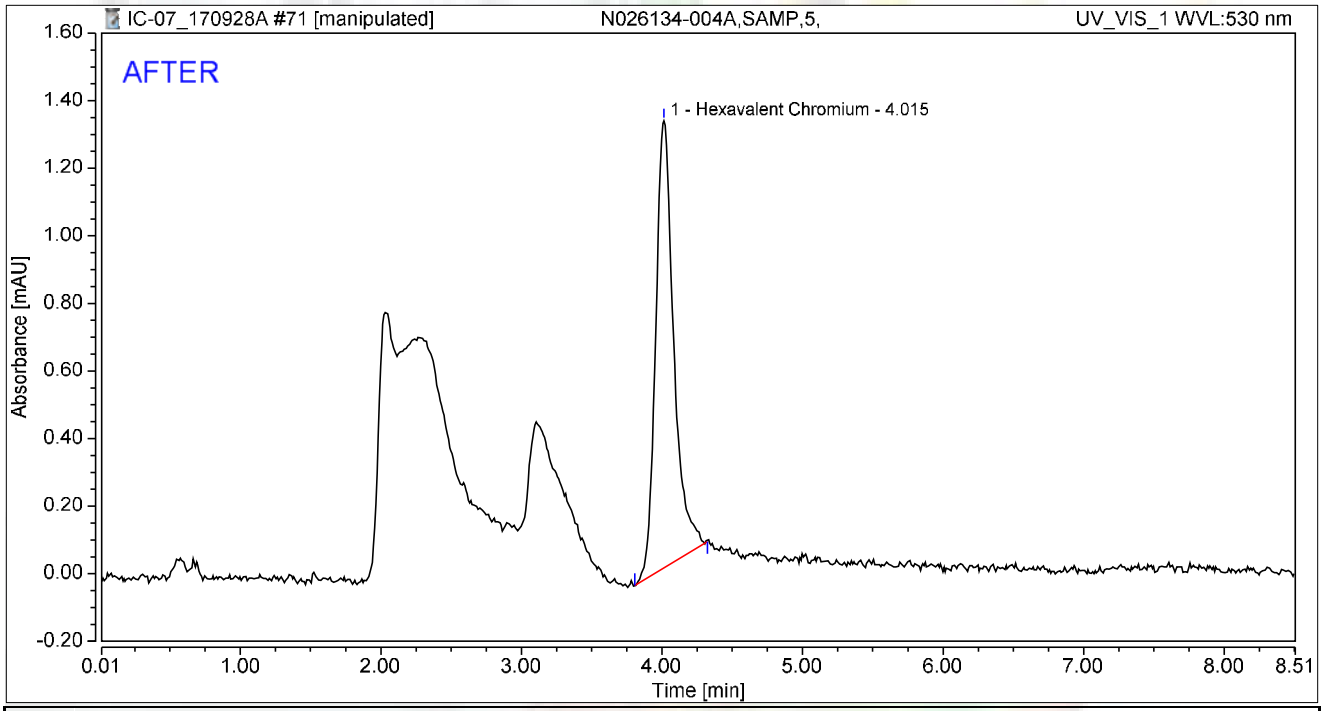
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.197	1.323	100.00	100.00	0.7597
Total:			**0.197**	**1.323**	**100.00**	**100.00**	

rba 10/5/2017

rba 10/5/2017

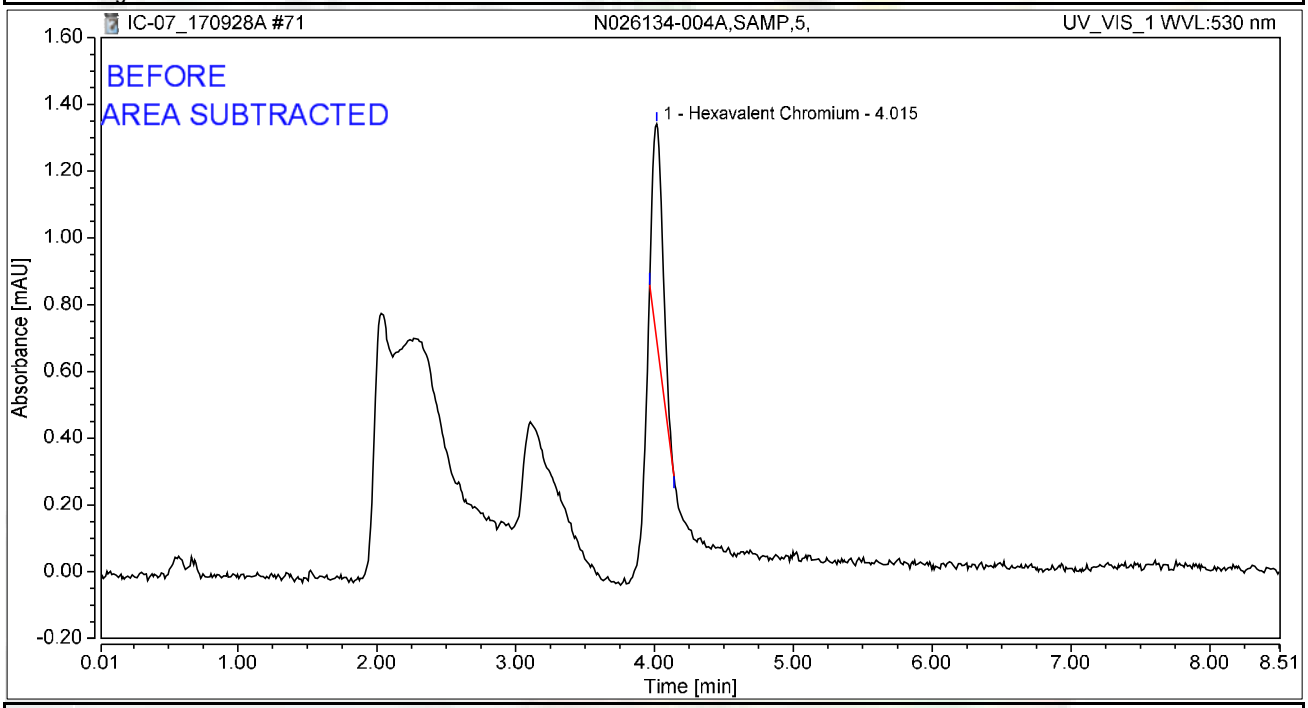
Reviewed by: 10/10/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026134-004A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 06:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.057	0.645	100.00	100.00	0.2191
Total:			**0.057**	**0.645**	**100.00**	**100.00**	

rba 10/5/2017

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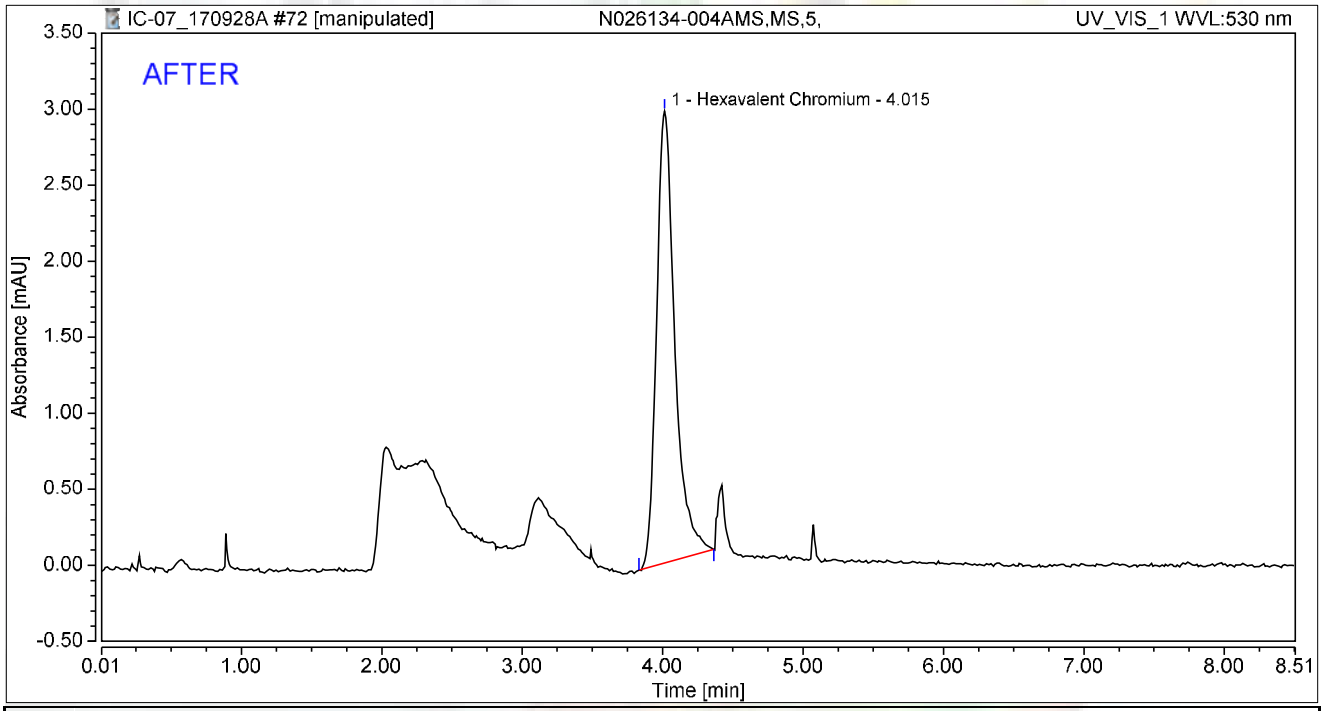
Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.447	2.970	100.00	100.00	1.7241
Total:			**0.447**	**2.970**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: 10/10/2017

My first report integration

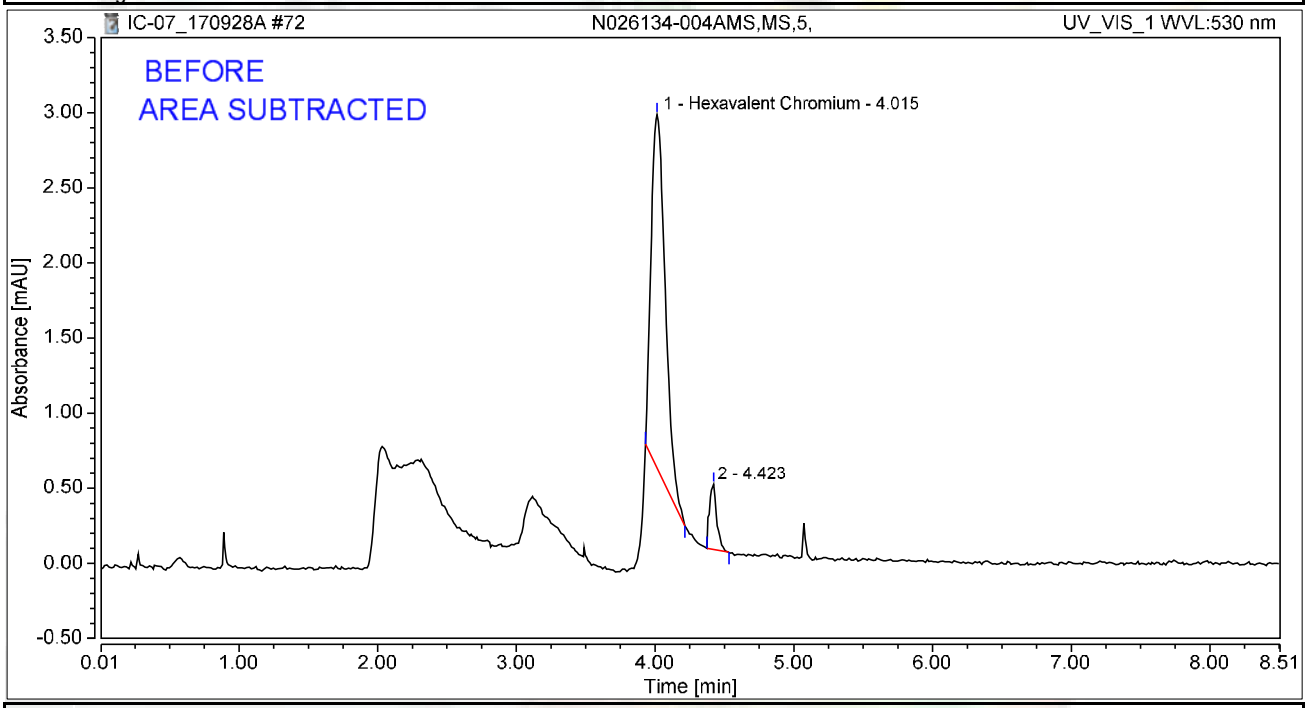
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-004AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.278	2.352	91.34	84.44	1.0702
2		4.423	0.026	0.433	8.66	15.56	n.a.
Total:			**0.304**	**2.785**	**100.00**	**100.00**	

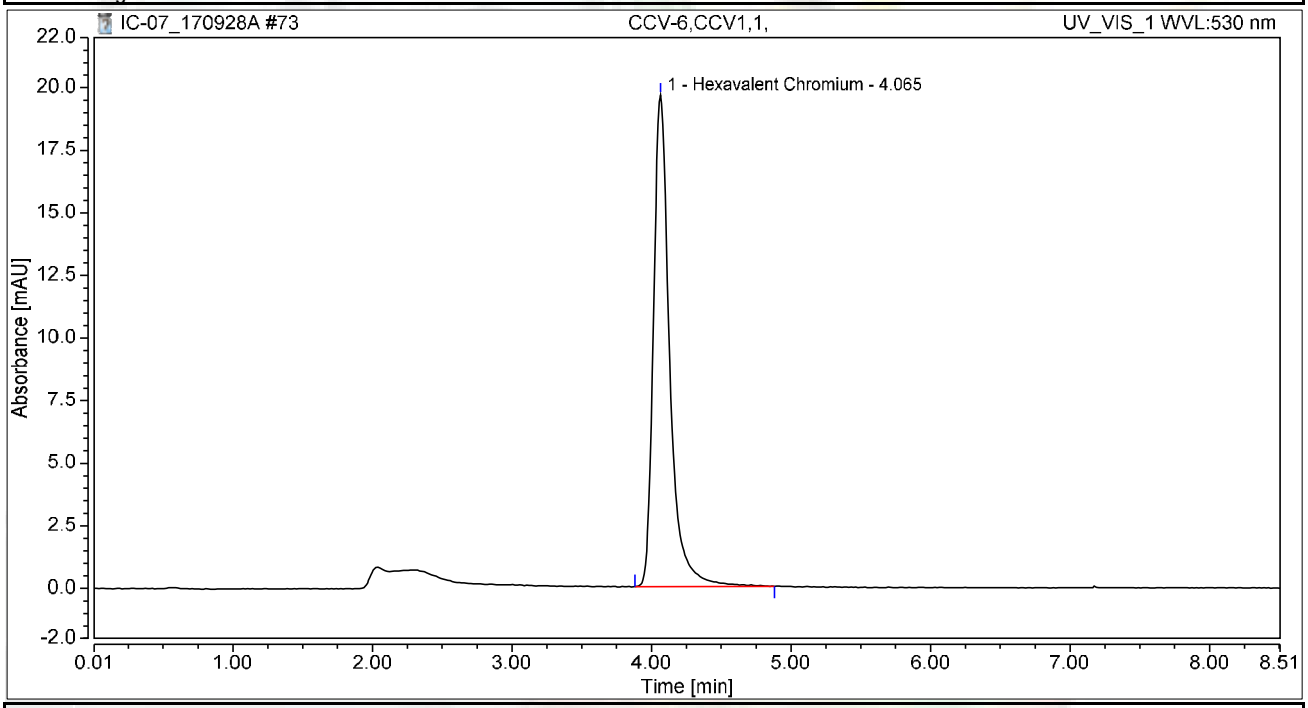
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

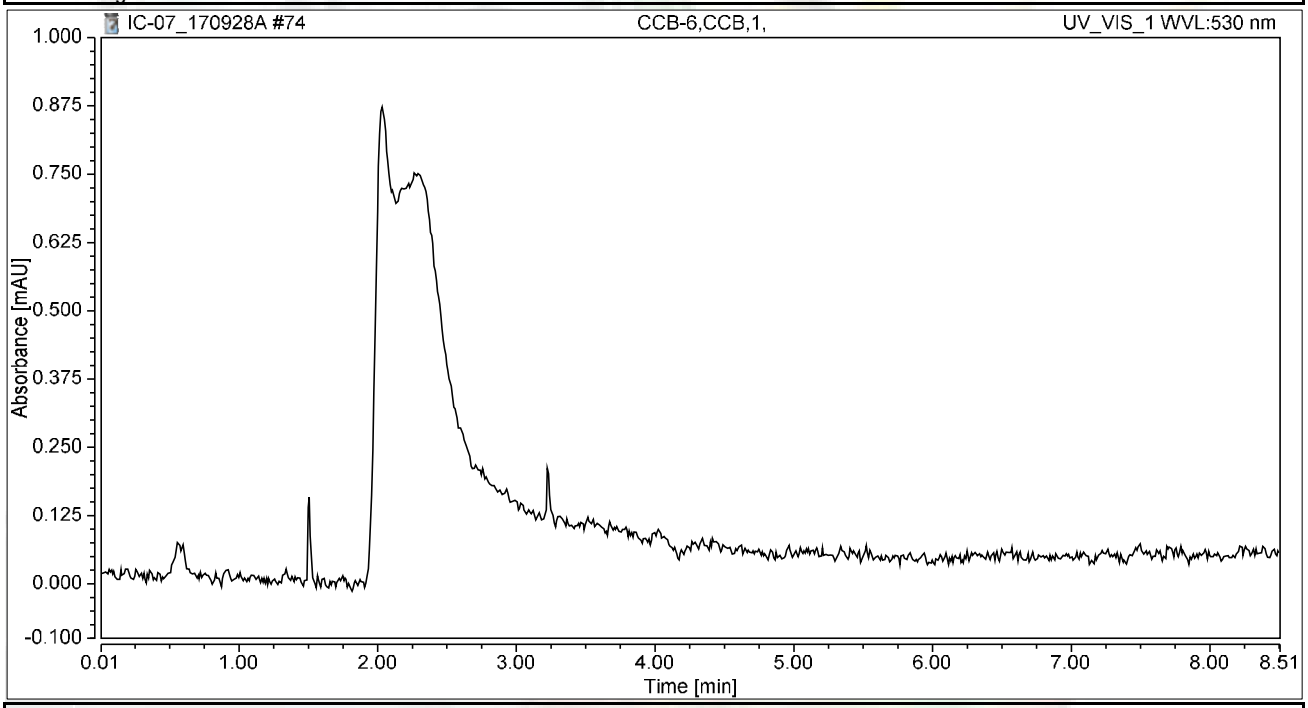
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.645	19.624	100.00	100.00	10.1923
Total:			**2.645**	**19.624**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

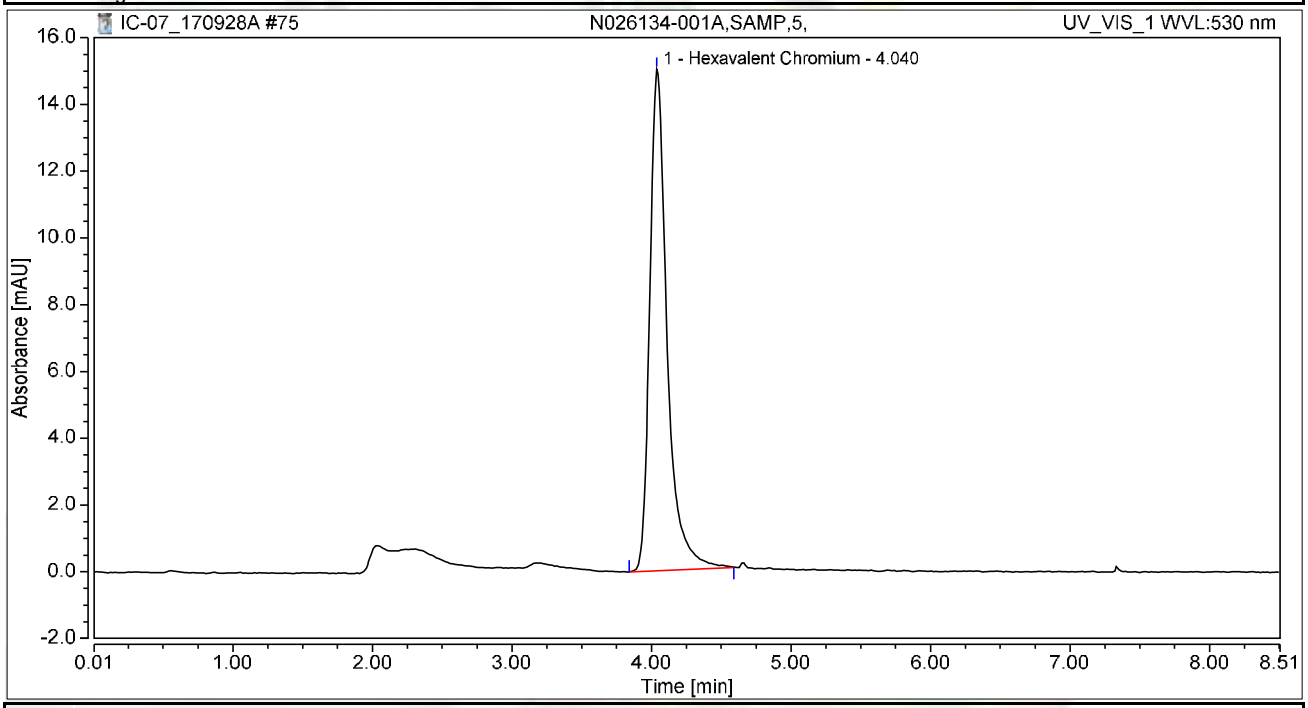
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

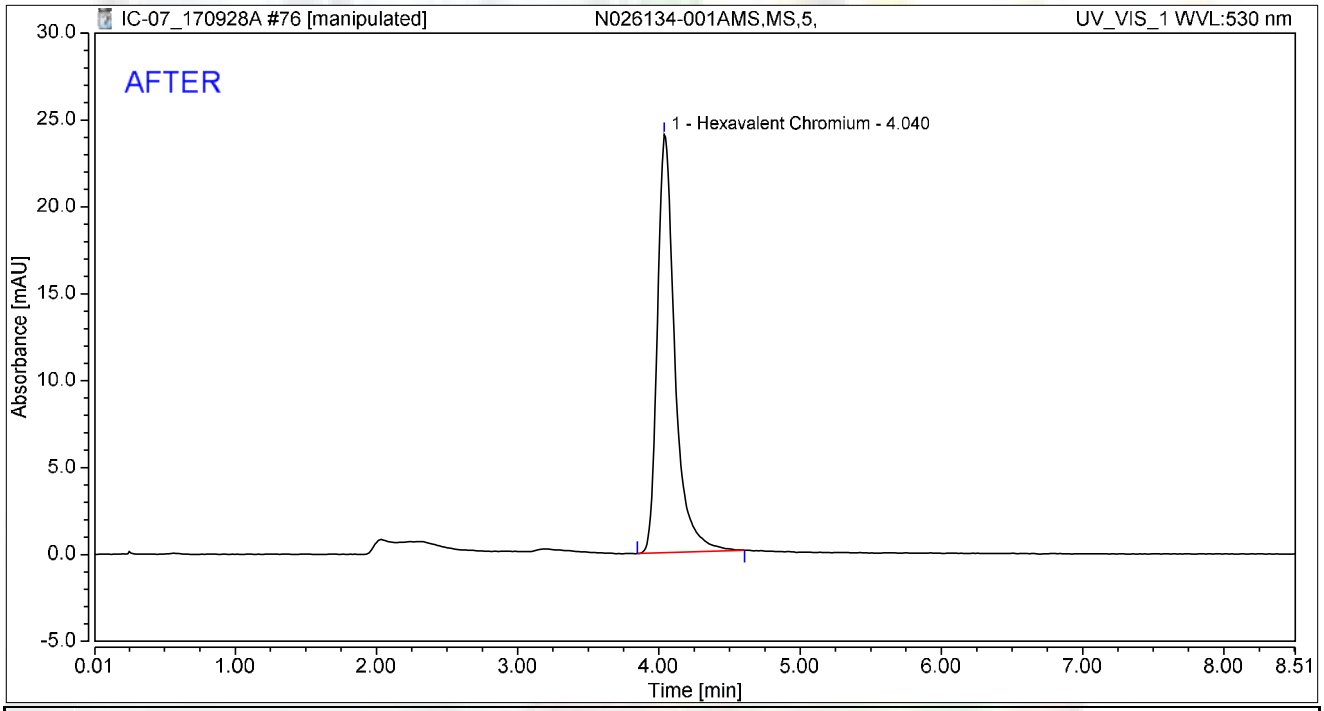
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	2.168	15.027	100.00	100.00	8.3516
Total:			**2.168**	**15.027**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	3.462	24.061	100.00	100.00	13.3369
Total:			**3.462**	**24.061**	**100.00**	**100.00**	

rba 10/5/2017

Reviewed by: Nancy 10/10/2017

My first report/integration

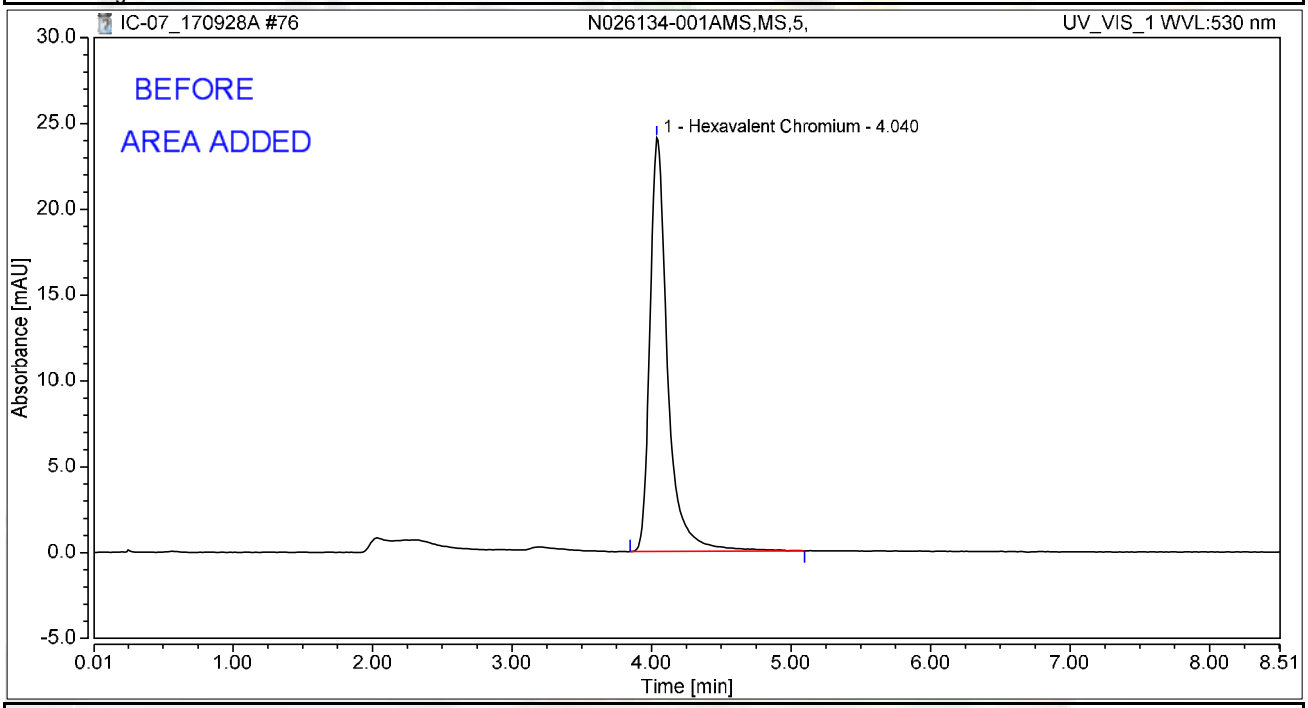
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026134-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	3.548	24.097	100.00	100.00	13.6719
Total:			**3.548**	**24.097**	**100.00**	**100.00**	

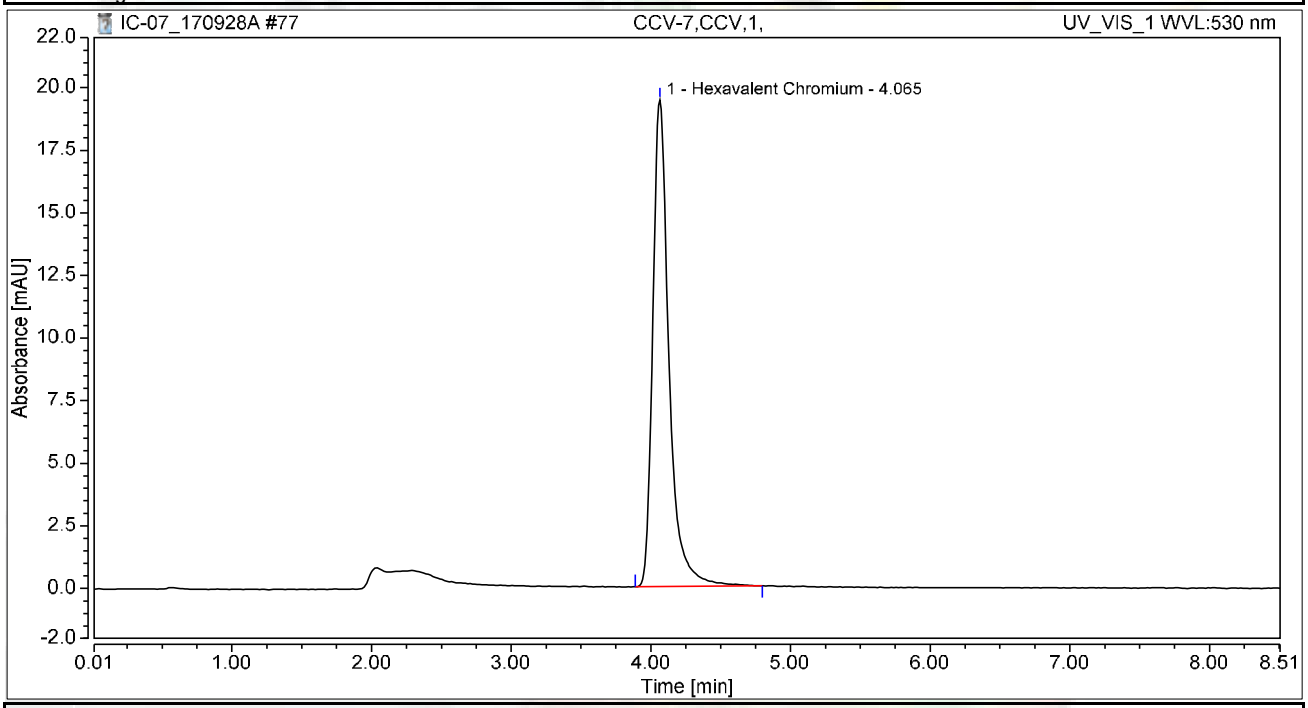
rba 10/5/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 07:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

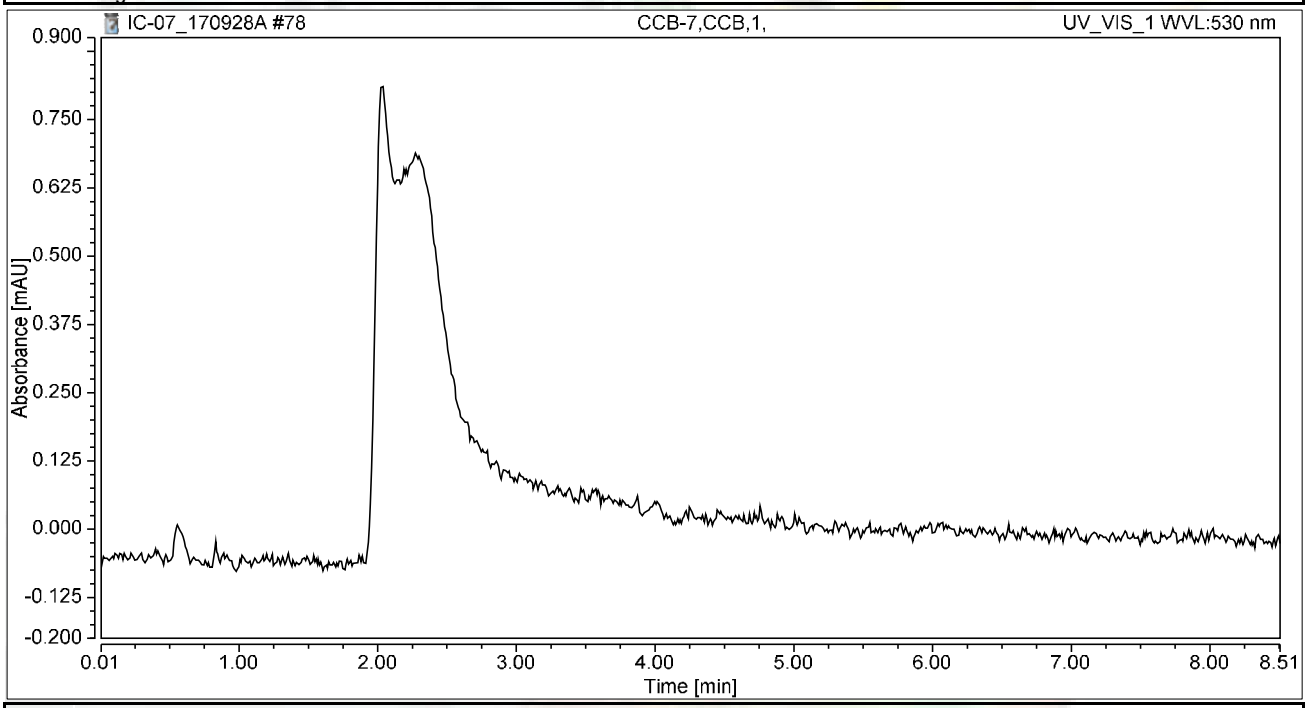
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.620	19.441	100.00	100.00	10.0960
Total:			**2.620**	**19.441**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**170905_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**29/Sep/17 08:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118390 **Analyst:** QBM

ASSET #: N026134 **Date Analyzed:** 10/7/2017

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RB 10/11/17 Date: —

2nd Level Reviewer 10/12/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N026134-003C** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.6418*5

= 3.209 mg/L

Reporting results in two significant figures:
Nitrate/Nitrite-N, mg/L = 3.2

RB 10/11/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

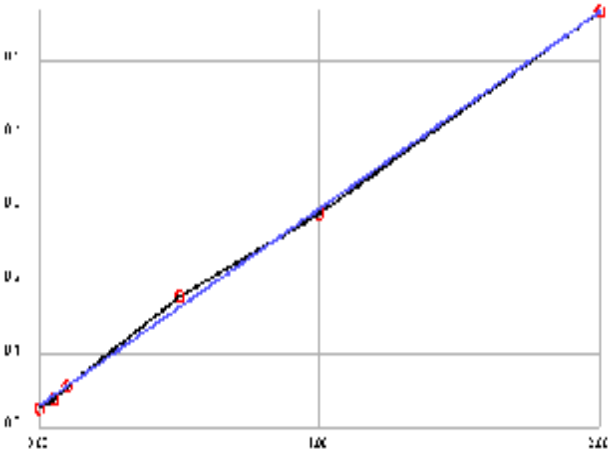
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2693x + 0.029
Correlation	.999241

Calibrant	Energy	Set	Conc
1	0.0249	0.0000	-0.0152
2	0.0380	0.0500	0.0334
3	0.0561	0.1000	0.1006
4	0.1794	0.5000	0.5586
5	0.2912	1.0000	0.9738
6	0.5672	2.0000	1.9988

Notes:

2% CuSO4- R171005A
R1 Buffer- R171005B
R2 Coloring reagent- R171005C

STD 1°- ISST160817E
STD 2°- ISST170419E

10/11/17

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ICV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.494	0.050	0.5000	0	98.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.469	0.050	0.5000	0	93.8	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.517	0.050	0.5000	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ICB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-07-2017 10:25
Time end: 10-07-2017 12:42

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	12:11:23	-0.0074		0.0270
2	<BLANK>	12:12:24	-0.0104		0.0262
3	<CAL1>	12:13:18	-0.0152	[0]	0.0249
4	<CAL2>	12:14:13	0.0334	[0.05]	0.0380
5	<CAL3>	12:15:15	0.1006	[0.1]	0.0561
6	<CAL4>	12:16:09	0.5586	[0.5]	0.1794
7	<CAL5>	12:17:10	0.9738	[1]	0.2912
8	<CAL6>	12:18:06	1.9988	[2]	0.5672
9	,BLANK,BLANK,1,	12:19:01	0.0104		0.0318
10	,ICV,ICV,1,	12:20:01	0.4943		0.1621
11	,ICB,ICB,1,	12:20:57	-0.0034		0.0281
12	,MB-H2O,MBLK,1,	12:21:52	-0.0104		0.0262
13	,LCS-H2O,LCS,1,	12:22:53	0.5266		0.1708
14	,N026114-006C,SAMP,5,	12:23:47	0.5857		0.1867
15	,N026134-001C,SAMP,1,	12:24:43	1.1042		0.3263
16	,N026134-002C,SAMP,1,	12:25:44	0.0334		0.0380
17	,N026134-002CDUP,DUP,1,	12:26:27	0.0160		0.0333
18	,N026134-003C,SAMP,5,	12:27:16	0.6418		0.2018
19	,N026134-003CMS,MS,5,	12:27:58	1.1469		0.3378
20	,N026134-003CMSD,MSD,5,	12:28:47	1.1517		0.3391
21	,BLANK,	12:29:31	0.0078		0.0311
22	,CCV-1,CCV,1,	12:30:13	0.4691		0.1553
23	,CCB-1,CCB,1,	12:31:02	0.0111		0.0320
24	,N026134-004C,SAMP,1,	12:31:44	0.1218		0.0618
25	,N026156-001C,SAMP,1,	12:32:28	1.3589		0.3949
26	,N026156-002C,SAMP,1,	12:33:16	0.8516		0.2583

10/11/17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N026156-003C,SAMP,1,	12:33:59	0.8761		0.2649
28	,N026226-001C,SAMP,1,	12:34:48	0.0282		0.0366
29	,N026226-002C,SAMP,1,	12:35:30	0.0728		0.0486
30	,N026226-003C,SAMP,1,	12:36:14	1.0815		0.3202
31	,N026257-001D,SAMP,5,	12:37:02	0.6028		0.1913
32	,N026257-002D,SAMP,5,	12:37:45	0.5385		0.1740
33	,BLANK,	12:38:27	-0.0063		0.0273
34	,CCV-2,CCV,1,	12:39:16	0.5173		0.1683
35	,CCB-2,CCB,1,	12:39:58	-0.0108		0.0261

10/11/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/7/17
Time Analyzed:10:21 AM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R171005B
Color reagent: R171005C
2% Copper Sulfate: R171005A
Ammonium Hydroxide: CINV-170919B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N026114-006C		8.85							
N026134-001C		8.01							
N026134-002C		6.38							
N026134-003C		7.94							
N026134-004C		7.92							
N026156-001C		7.98							
N026156-002C		8.13							
N026156-003C		7.85							
N026226-001C		7.79							
N026226-002C		8.02							
N026226-003C		8.67							
N026257-001D		8.80							
N026257-002D		8.78							

Advanced Technology Laboratories, Inc.
Book # 1

RB 10/11/17

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63964
ASSET #: N026134

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/12/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

RSD of Se is > 15% on LLICV however, recovery is within criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 10/13/17

2nd Level Reviewer 10/13/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N026134-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 39.379 * 1 * (25/25)

Chromium , ug/L = 39.379

Reporting results in two significant figures,

Chromium , ug/L = 39

% RSD SUMMARY

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	15.94	15	<PQL	0.11	9.61	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	5.96	15	PASS	0.52	6.36	15	PASS
Std3-5/50 ppb	ICAL	1	5.046	0.36	15	PASS	5.043	1.2	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	1.11	15	PASS	10.08	0.43	15	PASS
Std5-20/200 ppb	ICAL	1	20.28	2.15	15	PASS	20.4	0.91	15	PASS
Std6-40/400 ppb	ICAL	1	40.013	0.76	15	PASS	40.59	1.081	15	PASS
Std7-100/1000 ppb	ICAL	1	99.94	0.81	15	PASS	100.59	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	224.3	0.33	15	PASS	199.54	1.073	15	PASS
ICV	ICV	1	10.91	0.29	15	PASS	109.37	1.54	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.12	1.83	20	PASS	0.55	4.94	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.81	5.4	15	PASS	17.75	6.71	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-63964	LCS	1	11.056	0.32	15	PASS	110.22	0.67	15	PASS
N026093-001B	SAMP	1	<0.000	N/A	15	<PQL	914.92	0.54	15	PASS
N026093-001B	SAMP	5	<0.000	N/A	15	<PQL	185.83	1.39	15	PASS
N026093-001B-PS	PS	1	8.67	0.38	15	PASS	988.69	0.11	15	PASS
N026093-001B-MS	MS	1	8.79	1.087	15	PASS	986.95	0.57	15	PASS
N026093-001B-MSD	MSD	1	8.77	2.58	15	PASS	980.44	1.68	15	PASS
N026093-002B	SAMP	1	508.84	1.041	15	PASS	2.75	2.76	15	PASS
N026093-003B	SAMP	1	491.53	0.52	15	PASS	2.98	1.54	15	PASS
N026093-001B	SAMP	10	<0.000	N/A	15	<PQL	95.47	0.96	15	PASS
CCV1	CCV	1	20.27	1.19	15	PASS	20.39	2.056	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	<0.000	N/A	15	<PQL	19.97	1.89	15	PASS
N026093-001B-PS	PS	10	1.051	2.32	15	PASS	108.25	2.17	15	PASS
N026093-001B-MS	MS	10	1.04	3.26	15	PASS	107.86	0.43	15	PASS
N026093-001B-MSD	MSD	10	1.039	1.47	15	PASS	105.88	0.38	15	PASS
N026093-002B	SAMP	5	104.025	0.73	15	PASS	0.69	1.73	15	PASS
N026093-003B	SAMP	5	100.69	0.71	15	PASS	0.79	6.7	15	PASS
N026114-001B	SAMP	1	<0.000	N/A	15	<PQL	14.31	1.41	15	PASS
N026114-001B	SAMP	5	<0.000	N/A	15	<PQL	3.37	1.74	15	PASS
N026114-002B	SAMP	1	153.5	1.047	15	PASS	172.11	0.49	15	PASS
N026114-002B	SAMP	5	31.17	0.97	15	PASS	40.15	1.038	15	PASS
CCV2	CCV	1	20.5	1.4	15	PASS	20.25	1.0028	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026114-003B	SAMP	1	517.17	1.11	15	PASS	8.47	1.86	15	PASS
N026114-003B	SAMP	5	104.94	1.056	15	PASS	1.98	0.75	15	PASS
N026114-004B	SAMP	1	374.69	0.81	15	PASS	6.17	1.54	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	71.25	0.36	15	PASS	1.43	2.99	15	PASS
N026114-005B	SAMP	1	4.21	0.84	15	PASS	101.3	2.006	15	PASS
N026114-006B	SAMP	1	3.64	1.12	15	PASS	100.43	0.53	15	PASS
N026114-007B	SAMP	1	3.52	1.7	15	PASS	98.79	1.91	15	PASS
N026114-008B	SAMP	1	20823.022	0.37	15	PASS	2.5	5.11	15	PASS
N026114-008B	SAMP	250	95.45	0.87	15	PASS	0.0035	97.96	15	<PQL
N026134-001B	SAMP	1	39.38	0.6	15	PASS	336.59	1.58	15	PASS
CCV3	CCV	1	20.5	1.05	15	PASS	20.16	0.87	15	PASS
CCB3	CCB	1	0.11	3.0027	15	PASS	<0.000	N/A	15	<PQL
N026134-001B	SAMP	5	9.17	2.24	15	PASS	68.077	2.087	15	PASS
N026134-002B	SAMP	1	0.11	24.78	15	<PQL	112.74	0.65	15	PASS
N026134-002B	SAMP	5	0.058	25.33	15	<PQL	25.75	3.73	15	PASS
N026134-003B	SAMP	1	40.74	4.24	15	PASS	33.71	1.11	15	PASS
N026134-003B	SAMP	5	10.12	2.47	15	PASS	7.84	4.14	15	PASS
N026134-004B	SAMP	1	3.57	3.18	15	PASS	8.78	1.2	15	PASS
N026134-004B	SAMP	5	0.85	2.67	15	PASS	2.092	0.35	15	PASS
N026156-001B	SAMP	1	3.3	1.7	15	PASS	1.75	4.73	15	PASS
N026156-001B	SAMP	5	0.75	2.7	15	PASS	0.43	7.77	15	PASS
N026156-002B	SAMP	1	98.93	1.42	15	PASS	57.33	0.72	15	PASS
CCV4	CCV	1	20.38	2.64	15	PASS	19.85	1.64	15	PASS
CCB4	CCB	1	0.018	97.58	15	<PQL	<0.000	N/A	15	<PQL
N026156-002B	SAMP	5	23.85	1.52	15	PASS	13.77	3	15	PASS
N026156-003B	SAMP	1	97.29	0.74	15	PASS	60.006	1	15	PASS
N026156-003B	SAMP	5	22.73	3.0099	15	PASS	13.83	2.059	15	PASS
N026114-007B	SAMP	1	3.57	1.84	15	PASS	98.11	0.56	15	PASS
N026156-001B	SAMP	1	3.27	1.94	15	PASS	1.67	2.4	15	PASS
CCV5	CCV	1	20.58	0.89	15	PASS	20.34	1.084	15	PASS
CCB5	CCB	1	0.0042	116.44	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	1.06	1.22	20	PASS	0.57	2.48	20	PASS
ICSA2	ICSA	1	0.026	87.44	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.32	0.96	15	PASS	17.2	0.76	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.095	11.3	15	PASS	0.12	26.84	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	7.62	15	PASS	0.46	10.85	15	PASS
Std3-5/50 ppb	ICAL	1	4.95	1.093	15	PASS	4.79	6.98	15	PASS
Std4-10/100 ppb	ICAL	1	10.021	2.22	15	PASS	9.91	7.64	15	PASS
Std5-20/200 ppb	ICAL	1	19.72	0.78	15	PASS	19.95	6.29	15	PASS
Std6-40/400 ppb	ICAL	1	39.68	0.87	15	PASS	38.85	2.077	15	PASS
Std7-100/1000 ppb	ICAL	1	100.12	0.59	15	PASS	98.98	2.36	15	PASS
Std8-200/2000 ppb	ICAL	1	200.03	1.14	15	PASS	200.76	0.45	15	PASS
ICV	ICV	1	10.92	0.31	15	PASS	10.77	2.14	15	PASS
ICB	ICB	1	0.0078	127.53	15	<PQL	0.03	163.71	15	<PQL
LLICV	CCV1	1	0.12	15.92	20	PASS	0.56	20.35	20	NR!
ICSA1	ICSA	1	0.042	17.27	15	<PQL	0.072	65.049	15	<PQL
ICSAB1	ICSAB	1	20.67	3.63	15	PASS	21.14	1.94	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	0.017	66.91	15	<PQL
LCS-63964	LCS	1	10.95	0.75	15	PASS	10.4	4.19	15	PASS
N026093-001B	SAMP	1	4.21	2.23	15	PASS	0.096	41.48	15	<PQL
N026093-001B	SAMP	5	0.88	0.3	15	PASS	0.034	18.27	15	<PQL
N026093-001B-PS	PS	1	13.57	2.43	15	PASS	9.62	2.22	15	PASS
N026093-001B-MS	MS	1	14.095	1.69	15	PASS	9.15	8.12	15	PASS
N026093-001B-MSD	MSD	1	13.86	0.7	15	PASS	9.68	4.92	15	PASS
N026093-002B	SAMP	1	1.58	1.22	15	PASS	3.37	2.51	15	PASS
N026093-003B	SAMP	1	1.55	2.85	15	PASS	3.58	7.95	15	PASS
N026093-001B	SAMP	10	0.47	1.77	15	PASS	0.025	116.0007	15	<PQL
CCV1	CCV	1	19.94	0.91	15	PASS	19.83	0.77	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	0.091	7.8	15	PASS	0.014	158.36	15	<PQL
N026093-001B-PS	PS	10	1.62	0.22	15	PASS	1.18	19.95	15	NR!
N026093-001B-MS	MS	10	1.6	0.37	15	PASS	1.17	6.67	15	PASS
N026093-001B-MSD	MSD	10	1.59	2.73	15	PASS	1.15	12.088	15	PASS
N026093-002B	SAMP	5	0.34	12.23	15	PASS	0.73	10.47	15	PASS
N026093-003B	SAMP	5	0.31	8.15	15	PASS	0.82	24.36	15	NR!
N026114-001B	SAMP	1	5.26	4.64	15	PASS	3.49	0.58	15	PASS
N026114-001B	SAMP	5	1.17	1.54	15	PASS	0.68	12.25	15	PASS
N026114-002B	SAMP	1	0.43	9.57	15	PASS	8.99	2.48	15	PASS
N026114-002B	SAMP	5	0.088	11.57	15	PASS	1.87	6.37	15	PASS
CCV2	CCV	1	20.024	0.67	15	PASS	20.27	3.32	15	PASS
CCB2	CCB	1	0.00091	603.1	15	<PQL	0.0072	399.17	15	<PQL
N026114-003B	SAMP	1	1.94	6.17	15	PASS	6.53	6.26	15	PASS
N026114-003B	SAMP	5	0.4	3.91	15	PASS	1.41	5.69	15	PASS
N026114-004B	SAMP	1	2.23	3.59	15	PASS	10.91	2.28	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	0.46	1.93	15	PASS	2.21	3.79	15	PASS
N026114-005B	SAMP	1	7.72	1.67	15	PASS	1.24	9.88	15	PASS
N026114-006B	SAMP	1	7.73	1.96	15	PASS	1.27	4.52	15	PASS
N026114-007B	SAMP	1	7.37	4.01	15	PASS	1.3	15.63	15	NR!
N026114-008B	SAMP	1	2.72	1.6	15	PASS	14.0075	2.67	15	PASS
N026114-008B	SAMP	250	<0.000	N/A	15	<PQL	0.056	59.39	15	<PQL
N026134-001B	SAMP	1	1.58	7.19	15	PASS	1.81	11.15	15	PASS
CCV3	CCV	1	19.79	0.79	15	PASS	20.78	2.14	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.018	141.96	15	<PQL
N026134-001B	SAMP	5	0.33	2.3	15	PASS	0.4	33.24	15	<PQL
N026134-002B	SAMP	1	4.28	1.37	15	PASS	0.13	33.73	15	<PQL
N026134-002B	SAMP	5	0.97	9.78	15	PASS	0.011	178.89	15	<PQL
N026134-003B	SAMP	1	1.33	4.88	15	PASS	3.58	11.5	15	PASS
N026134-003B	SAMP	5	0.29	8.66	15	PASS	0.86	10.026	15	PASS
N026134-004B	SAMP	1	14.75	2.86	15	PASS	0.27	12.9	15	PASS
N026134-004B	SAMP	5	3.28	2.18	15	PASS	0.04	78.66	15	<PQL
N026156-001B	SAMP	1	1.43	8.099	15	PASS	0.97	33.57	15	NR!
N026156-001B	SAMP	5	0.29	6.68	15	PASS	0.13	19.41	15	<PQL
N026156-002B	SAMP	1	10.82	1.22	15	PASS	1.18	6.99	15	PASS
CCV4	CCV	1	19.9	0.57	15	PASS	22.088	3.43	15	PASS
CCB4	CCB	1	0.001	272.48	15	<PQL	0.000028	48404.27	15	<PQL
N026156-002B	SAMP	5	2.4	0.92	15	PASS	0.25	3.67	15	PASS
N026156-003B	SAMP	1	10.57	1.38	15	PASS	1.046	15.07	15	NR!
N026156-003B	SAMP	5	2.42	4.4	15	PASS	0.25	15.9	15	<PQL
N026114-007B	SAMP	1	7.46	3.23	15	PASS	1.25	8.96	15	PASS
N026156-001B	SAMP	1	1.36	3.84	15	PASS	0.97	9.31	15	PASS
CCV5	CCV	1	19.79	0.86	15	PASS	19.63	5.91	15	PASS
CCB5	CCB	1	0.0056	82.96	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.11	15.33	20	PASS	0.46	19.93	20	PASS
ICSA2	ICSA	1	0.031	22.63	15	<PQL	0.076	67.48	15	<PQL
ICSAB2	ICSAB	1	20.42	2.082	15	PASS	19.097	1.015	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.089	4.4	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	1.5	15	PASS
Std3-5/50 ppb	ICAL	1	4.88	0.72	15	PASS
Std4-10/100 ppb	ICAL	1	9.79	0.52	15	PASS
Std5-20/200 ppb	ICAL	1	19.65	0.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.34	1.0084	15	PASS
Std7-100/1000 ppb	ICAL	1	99.21	0.52	15	PASS
Std8-200/2000 ppb	ICAL	1	200.57	0.14	15	PASS
ICV	ICV	1	10.92	1.33	15	PASS
ICB	ICB	1	0.058	18.18	15	<PQL
LLICV	CCV1	1	0.48	4.21	20	PASS
ICSA1	ICSA	1	0.14	7.34	15	PASS
ICSAB1	ICSAB	1	22.3	2.86	15	PASS
MB-63964	MBLK	1	0.028	15.33	15	<PQL
LCS-63964	LCS	1	10.76	0.84	15	PASS
N026093-001B	SAMP	1	61.88	1.86	15	PASS
N026093-001B	SAMP	5	12.9	0.79	15	PASS
N026093-001B-PS	PS	1	71.75	0.029	15	PASS
N026093-001B-MS	MS	1	71.71	1.25	15	PASS
N026093-001B-MSD	MSD	1	71.22	1.035	15	PASS
N026093-002B	SAMP	1	13.74	1.56	15	PASS
N026093-003B	SAMP	1	13.92	1.32	15	PASS
N026093-001B	SAMP	10	6.5	2.72	15	PASS
CCV1	CCV	1	19.62	0.9	15	PASS
CCB1	CCB	1	0.019	25.51	15	<PQL
N026093-001B	SAMP	50	1.27	2.53	15	PASS
N026093-001B-PS	PS	10	7.66	0.98	15	PASS
N026093-001B-MS	MS	10	7.54	0.81	15	PASS
N026093-001B-MSD	MSD	10	7.53	0.83	15	PASS
N026093-002B	SAMP	5	2.87	2.99	15	PASS
N026093-003B	SAMP	5	2.89	1.068	15	PASS
N026114-001B	SAMP	1	52.91	0.41	15	PASS
N026114-001B	SAMP	5	11.2	0.65	15	PASS
N026114-002B	SAMP	1	31.33	0.56	15	PASS
N026114-002B	SAMP	5	6.58	0.75	15	PASS
CCV2	CCV	1	19.37	0.77	15	PASS
CCB2	CCB	1	0.024	11.61	15	PASS
N026114-003B	SAMP	1	27.42	1.49	15	PASS
N026114-003B	SAMP	5	5.86	1.54	15	PASS
N026114-004B	SAMP	1	81.1	0.84	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	16.5	0.99	15	PASS
N026114-005B	SAMP	1	37.79	0.6	15	PASS
N026114-006B	SAMP	1	37.36	0.55	15	PASS
N026114-007B	SAMP	1	36.23	1.51	15	PASS
N026114-008B	SAMP	1	36.24	0.59	15	PASS
N026114-008B	SAMP	250	0.17	2.11	15	PASS
N026134-001B	SAMP	1	21.3	1.78	15	PASS
CCV3	CCV	1	19.36	1.64	15	PASS
CCB3	CCB	1	0.023	30.24	15	<PQL
N026134-001B	SAMP	5	4.62	2.81	15	PASS
N026134-002B	SAMP	1	40.27	1.24	15	PASS
N026134-002B	SAMP	5	8.3	3.21	15	PASS
N026134-003B	SAMP	1	30.15	2.89	15	PASS
N026134-003B	SAMP	5	6.28	3.13	15	PASS
N026134-004B	SAMP	1	73.46	1.73	15	PASS
N026134-004B	SAMP	5	15.5	2.31	15	PASS
N026156-001B	SAMP	1	15.8	0.59	15	PASS
N026156-001B	SAMP	5	3.42	0.91	15	PASS
N026156-002B	SAMP	1	72.81	0.29	15	PASS
CCV4	CCV	1	18.79	1.57	15	PASS
CCB4	CCB	1	0.03	22.21	15	<PQL
N026156-002B	SAMP	5	15.5	0.5	15	PASS
N026156-003B	SAMP	1	71.56	1.38	15	PASS
N026156-003B	SAMP	5	14.9	0.62	15	PASS
N026114-007B	SAMP	1	35.7	0.63	15	PASS
N026156-001B	SAMP	1	15.81	0.65	15	PASS
CCV5	CCV	1	19.21	0.46	15	PASS
CCB5	CCB	1	0.024	12.13	15	PASS
LLCCV1	CCV2	1	0.5	1.64	20	PASS
ICSA2	ICSA	1	0.11	4.88	15	PASS
ICSAB2	ICSAB	1	21.35	0.56	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012001.D	RINSE	RINSE	1	10/12/17 5:01 AM
A1012002.D	Cal Blank	IBLK	1	10/12/17 5:06 AM
A1012003.D	Std1-0.1/1 ppb	ICAL	1	10/12/17 5:12 AM
A1012004.D	Std2-0.5/5 ppb	ICAL	1	10/12/17 5:18 AM
A1012005.D	Std3-5/50 ppb	ICAL	1	10/12/17 5:23 AM
A1012006.D	Std4-10/100 ppb	ICAL	1	10/12/17 5:29 AM
A1012007.D	Std5-20/200 ppb	ICAL	1	10/12/17 5:34 AM
A1012008.D	Std6-40/400 ppb	ICAL	1	10/12/17 5:40 AM
A1012009.D	Std7-100/1000 ppb	ICAL	1	10/12/17 5:45 AM
A1012010.D	Std8-200/2000 ppb	ICAL	1	10/12/17 5:51 AM
A1012011.D	ICV	ICV	1	10/12/17 5:56 AM
A1012012.D	ICB	ICB	1	10/12/17 6:02 AM
A1012013.D	LLICV	CCV1	1	10/12/17 6:07 AM
A1012014.D	ICSA1	ICSA	1	10/12/17 6:13 AM
A1012015.D	ICSAB1	ICSAB	1	10/12/17 6:18 AM
A1012016.D	MB-63964	MBLK	1	10/12/17 6:24 AM
A1012017.D	LCS-63964	LCS	1	10/12/17 6:29 AM
A1012018.D	N026093-001B	SAMP	1	10/12/17 6:35 AM
A1012019.D	N026093-001B	SAMP	5	10/12/17 6:41 AM
A1012020.D	N026093-001B-PS	PS	1	10/12/17 6:46 AM
A1012021.D	N026093-001B-MS	MS	1	10/12/17 6:52 AM
A1012022.D	N026093-001B-MSD	MSD	1	10/12/17 6:57 AM
A1012023.D	N026093-002B	SAMP	1	10/12/17 7:03 AM
A1012024.D	N026093-003B	SAMP	1	10/12/17 7:08 AM
A1012025.D	N026093-001B	SAMP	10	10/12/17 7:14 AM
A1012026.D	CCV1	CCV	1	10/12/17 7:19 AM
A1012027.D	CCB1	CCB	1	10/12/17 7:25 AM
A1012028.D	N026093-001B	SAMP	50	10/12/17 7:30 AM
A1012029.D	N026093-001B-PS	PS	10	10/12/17 7:36 AM
A1012030.D	N026093-001B-MS	MS	10	10/12/17 7:41 AM
A1012031.D	N026093-001B-MSD	MSD	10	10/12/17 7:47 AM
A1012032.D	N026093-002B	SAMP	5	10/12/17 7:52 AM
A1012033.D	N026093-003B	SAMP	5	10/12/17 7:58 AM
A1012034.D	N026114-001B	SAMP	1	10/12/17 8:03 AM
A1012035.D	N026114-001B	SAMP	5	10/12/17 8:09 AM
A1012036.D	N026114-002B	SAMP	1	10/12/17 8:15 AM
A1012037.D	N026114-002B	SAMP	5	10/12/17 8:20 AM
A1012038.D	CCV2	CCV	1	10/12/17 8:26 AM
A1012039.D	CCB2	CCB	1	10/12/17 8:32 AM
A1012040.D	N026114-003B	SAMP	1	10/12/17 8:37 AM
A1012041.D	N026114-003B	SAMP	5	10/12/17 8:43 AM
A1012042.D	N026114-004B	SAMP	1	10/12/17 8:48 AM

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012043.D	N026114-004B	SAMP	5	10/12/17 8:54 AM
A1012044.D	N026114-005B	SAMP	1	10/12/17 8:59 AM
A1012045.D	N026114-006B	SAMP	1	10/12/17 9:05 AM
A1012046.D	N026114-007B	SAMP	1	10/12/17 9:10 AM
A1012047.D	N026114-008B	SAMP	1	10/12/17 9:16 AM
A1012048.D	N026114-008B	SAMP	250	10/12/17 9:21 AM
A1012049.D	N026134-001B	SAMP	1	10/12/17 9:27 AM
A1012050.D	CCV3	CCV	1	10/12/17 9:32 AM
A1012051.D	CCB3	CCB	1	10/12/17 9:38 AM
A1012052.D	N026134-001B	SAMP	5	10/12/17 9:43 AM
A1012053.D	N026134-002B	SAMP	1	10/12/17 9:49 AM
A1012054.D	N026134-002B	SAMP	5	10/12/17 9:55 AM
A1012055.D	N026134-003B	SAMP	1	10/12/17 10:00 AM
A1012056.D	N026134-003B	SAMP	5	10/12/17 10:06 AM
A1012057.D	N026134-004B	SAMP	1	10/12/17 10:11 AM
A1012058.D	N026134-004B	SAMP	5	10/12/17 10:17 AM
A1012059.D	N026156-001B	SAMP	1	10/12/17 10:22 AM
A1012060.D	N026156-001B	SAMP	5	10/12/17 10:28 AM
A1012061.D	N026156-002B	SAMP	1	10/12/17 10:33 AM
A1012062.D	CCV4	CCV	1	10/12/17 10:39 AM
A1012063.D	CCB4	CCB	1	10/12/17 10:44 AM
A1012064.D	N026156-002B	SAMP	5	10/12/17 10:50 AM
A1012065.D	N026156-003B	SAMP	1	10/12/17 10:55 AM
A1012066.D	N026156-003B	SAMP	5	10/12/17 11:01 AM
A1012067.D	N026114-007B	SAMP	1	10/12/17 11:07 AM
A1012068.D	N026156-001B	SAMP	1	10/12/17 11:12 AM
A1012069.D	CCV5	CCV	1	10/12/17 11:18 AM
A1012070.D	CCB5	CCB	1	10/12/17 11:23 AM
A1012071.D	LLCCV1	CCV2	1	10/12/17 11:29 AM
A1012072.D	ICSA2	ICSA	1	10/12/17 11:35 AM
A1012073.D	ICSAB2	ICSAB	1	10/12/17 11:40 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**
Prep Batch **63964** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 10/13/2017
Initials/ Date: CEI 10/13/17
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63964	Aqueous		25	☐	0	0	25	1.000		
MB-63964	Aqueous		25	☐	0	0	25	1.000		
N026093-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-007B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**
Reviewed/ Date: 10/13/2017
Initials/ Date: CEI 10/13/17
Prep Batch **63964** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N026114-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-003B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2017 02:47:04 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	165511.00	0.00	
24 Mg	499304.00	0.00	
25 Mg	65337.40	0.00	
26 Mg	75826.70	0.00	
59 Co	653726.00	0.00	
115 In	999173.00	0.00	
206 Pb	295094.00	0.00	
207 Pb	259020.00	0.00	
208 Pb	634328.00	0.00	

RSD (%)

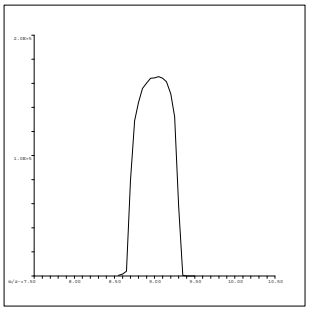
Element	Actual	Required	Flag
9 Be	1.01	5.00	
24 Mg	0.65	5.00	
25 Mg	2.02	5.00	
26 Mg	1.03	5.00	
59 Co	0.71	5.00	
115 In	0.59	5.00	
206 Pb	0.73	5.00	
207 Pb	1.06	5.00	
208 Pb	0.61	5.00	

Ion Ratio

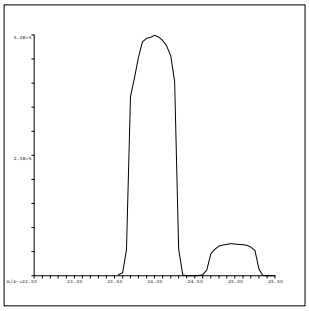
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

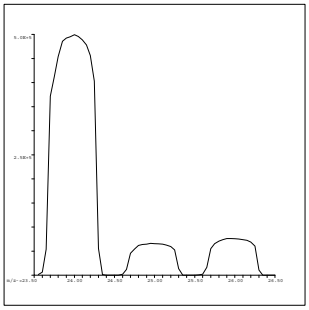
Element	Actual	Required	Flag



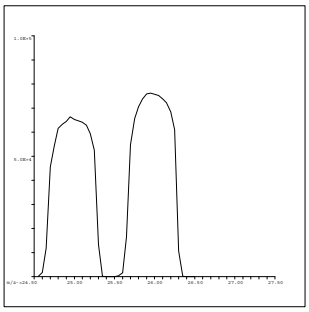
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



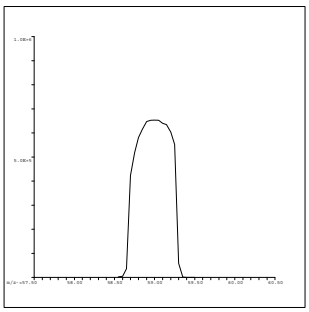
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



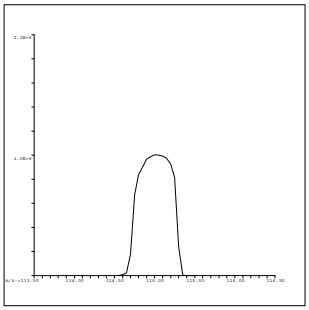
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



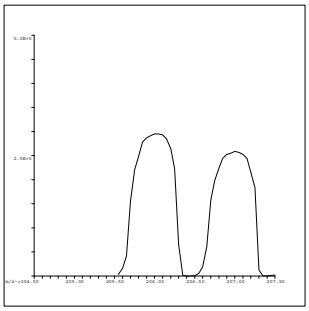
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



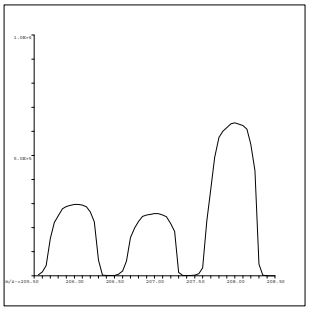
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



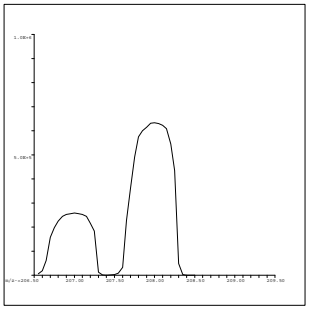
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 171012A

Instrument ID: ICPMS-02

Analyte	Data File	A1012002.D	A1012003.D	A1012004.D	A1012005.D	A1012006.D	A1012007.D	A1012008.D	A1012009.D	A1012010.D	
	Acq. Date-Time	10/12/2017 05:06 AM	10/12/2017 05:12 AM	10/12/2017 05:18 AM	10/12/2017 05:23 AM	10/12/2017 05:29 AM	10/12/2017 05:34 AM	10/12/2017 05:40 AM	10/12/2017 05:45 AM	10/12/2017 05:51 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	108669.5		119532.6	119350.5	119064.2	116748.3	117079.1	114999.5	114629.2	
55 Mn [2]	CPS	146		2606.6	23833.4	47355.5	93813.5	187032.6	454984	899628.9	1.0000
52 Cr [2]	CPS	845.4		5148.5	45335.4	88579.8	175407.8	346343	848306.7	1896775.6	1.0000
72 Ge (ISTD) [1]	CPS	97228.3		98659.8	98939.5	97209.3	94628.7	96625.8	93800.7	91903	
78 Se [1]	CPS	6.7		166.7	1686.8	3427.2	6700.6	13323.8	32941	65460.7	1.0000
72 Ge (ISTD) [2]	CPS	75383.9	83851.2	84051.4	83514.8	82923.2	82408.5	82254.5	79419.3	79391.6	
75 As [2]	CPS	27.1	124	496	4919	9849.3	19231	38602.5	93998.9	187681.1	1.0000
103 Rh (ISTD) [2]	CPS	2243050.3		2483146.6	2511454.4	2474294.3	2454264.4	2482662.3	2384160	2381162.9	
95 Mo [2]	CPS	46.7		2621.4	27234.1	53833.5	107080.9	216771.2	525013.3	1060017.1	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.925	0.10	10.00	0	109	90	110				
Manganese	109.366	0.50	100.0	0	109	90	110				
Molybdenum	10.916	0.50	10.00	0	109	90	110				
Selenium	10.769	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.117	0.10	0.1000	0	117	80	120				
Manganese	0.554	0.50	0.5000	0	111	80	120				
Molybdenum	0.483	0.50	0.5000	0	96.6	80	120				
Selenium	0.556	0.50	0.5000	0	111	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.944	0.10	20.00	0	99.7	90	110				
Manganese	20.386	0.50	20.00	0	102	90	110				
Molybdenum	19.622	0.50	20.00	0	98.1	90	110				
Selenium	19.826	0.50	20.00	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.024	0.10	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.246	0.50	20.00	0	101	90	110				
Molybdenum	19.365	0.50	20.00	0	96.8	90	110				
Selenium	20.266	0.50	20.00	0	101	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.793	0.10	20.00	0	99.0	90	110				
Manganese	20.157	0.50	20.00	0	101	90	110				
Molybdenum	19.357	0.50	20.00	0	96.8	90	110				
Selenium	20.781	0.50	20.00	0	104	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.901	0.10	20.00	0	99.5	90	110				
Manganese	19.855	0.50	20.00	0	99.3	90	110				
Molybdenum	18.795	0.50	20.00	0	94.0	90	110				
Selenium	22.088	0.50	20.00	0	110	90	110				S

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.787	0.10	20.00	0	98.9	90	110				
Manganese	20.336	0.50	20.00	0	102	90	110				
Molybdenum	19.210	0.50	20.00	0	96.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Se on CCV4 is within +/- 10% of criteria.

10/13/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.627	0.50	20.00	0	98.1	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.110	0.10	0.1000	0	110	70	130				
Manganese	0.572	0.50	0.5000	0	114	70	130				
Molybdenum	0.503	0.50	0.5000	0	101	70	130				
Selenium	0.461	0.50	0.5000	0	92.3	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.906	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.125	1.0	1.000	0	112	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.275	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.504	1.0	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.500	1.0	20.00	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.376	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.579	1.0	20.00	0	103	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.060	1.0	1.000	0	106	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.058	0.50									
Selenium	0.030	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.111	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.042	0.10									
Manganese	ND	0.50									
Molybdenum	0.142	0.50									
Selenium	0.072	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.672	0.10	20.00	0	103	80	120				
Manganese	17.745	0.50	20.00	0	88.7	80	120				
Molybdenum	22.300	0.50	20.00	0	111	80	120				
Selenium	21.138	0.50	20.00	0	106	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.031	0.10									
Manganese	ND	0.50									
Molybdenum	0.113	0.50									
Selenium	0.076	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.424	0.10	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.202	0.50	20.00	0	86.0	80	120				
Molybdenum	21.354	0.50	20.00	0	107	80	120				
Selenium	19.097	0.50	20.00	0	95.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.814	1.0	20.00	0	99.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.026	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.315	1.0	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	108669.5	108669.5	100	PASS	70-125	75383.9	75383.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	119552.6	108669.5	110.02	PASS	70-125	83851.2	75383.9	111.23	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119532.6	108669.5	110	PASS	70-125	84051.4	75383.9	111.5	PASS	70-125
Std3-5/50 ppb	ICAL	1	119350.5	108669.5	109.83	PASS	70-125	83514.8	75383.9	110.79	PASS	70-125
Std4-10/100 ppb	ICAL	1	119064.2	108669.5	109.57	PASS	70-125	82923.2	75383.9	110	PASS	70-125
Std5-20/200 ppb	ICAL	1	116748.3	108669.5	107.43	PASS	70-125	82408.5	75383.9	109.32	PASS	70-125
Std6-40/400 ppb	ICAL	1	117079.1	108669.5	107.74	PASS	70-125	82254.5	75383.9	109.11	PASS	70-125
Std7-100/1000 ppb	ICAL	1	114999.5	108669.5	105.83	PASS	70-125	79419.3	75383.9	105.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	114629.2	108669.5	105.48	PASS	70-125	79391.6	75383.9	105.32	PASS	70-125
ICV	ICV	1	103654.5	108669.5	95.39	PASS	70-125	74276.2	75383.9	98.53	PASS	70-125
ICB	ICB	1	106373.2	108669.5	97.89	PASS	70-125	76222.1	75383.9	101.11	PASS	70-125
LLICV	CCV1	1	107263.2	108669.5	98.71	PASS	70-125	78829.9	75383.9	104.57	PASS	70-125
ICSA1	ICSA	1	119463.8	108669.5	109.93	PASS	70-125	83102.1	75383.9	110.24	PASS	70-125
ICSAB1	ICSAB	1	110208.5	108669.5	101.42	PASS	70-125	74165.3	75383.9	98.38	PASS	70-125
MB-63964	MBLK	1	116354.9	108669.5	107.07	PASS	70-125	81787.8	75383.9	108.5	PASS	70-125
LCS-63964	LCS	1	105476.7	108669.5	97.062	PASS	70-125	75647	75383.9	100.35	PASS	70-125
N026093-001B	SAMP	1	100828.7	108669.5	92.78	PASS	70-125	63981.8	75383.9	84.87	PASS	70-125
N026093-001B	SAMP	5	107726.9	108669.5	99.13	PASS	70-125	74579.1	75383.9	98.93	PASS	70-125
N026093-001B-PS	PS	1	107359.7	108669.5	98.79	PASS	70-125	68070.5	75383.9	90.3	PASS	70-125
N026093-001B-MS	MS	1	107438.7	108669.5	98.87	PASS	70-125	67550.7	75383.9	89.61	PASS	70-125
N026093-001B-MSD	MSD	1	105473.6	108669.5	97.059	PASS	70-125	66107.4	75383.9	87.69	PASS	70-125
N026093-002B	SAMP	1	112622.6	108669.5	103.64	PASS	70-125	73821.1	75383.9	97.93	PASS	70-125
N026093-003B	SAMP	1	114742.9	108669.5	105.59	PASS	70-125	74430.9	75383.9	98.74	PASS	70-125
N026093-001B	SAMP	10	109413.5	108669.5	100.68	PASS	70-125	75655.2	75383.9	100.36	PASS	70-125
CCV1	CCV	1	122438.7	108669.5	112.67	PASS	70-125	85406.1	75383.9	113.29	PASS	70-125
CCB1	CCB	1	113523.3	108669.5	104.47	PASS	70-125	78979.9	75383.9	104.77	PASS	70-125
N026093-001B	SAMP	50	107327.3	108669.5	98.76	PASS	70-125	74707.5	75383.9	99.1	PASS	70-125
N026093-001B-PS	PS	10	103502.2	108669.5	95.24	PASS	70-125	72181.9	75383.9	95.75	PASS	70-125
N026093-001B-MS	MS	10	103904.5	108669.5	95.62	PASS	70-125	72219.5	75383.9	95.8	PASS	70-125
N026093-001B-MSD	MSD	10	104678.1	108669.5	96.33	PASS	70-125	72740.9	75383.9	96.49	PASS	70-125
N026093-002B	SAMP	5	104216.7	108669.5	95.9	PASS	70-125	73376.9	75383.9	97.34	PASS	70-125
N026093-003B	SAMP	5	103398.4	108669.5	95.15	PASS	70-125	73736.1	75383.9	97.81	PASS	70-125
N026114-001B	SAMP	1	96550.6	108669.5	88.85	PASS	70-125	61313.9	75383.9	81.34	PASS	70-125
N026114-001B	SAMP	5	105870.5	108669.5	97.42	PASS	70-125	71330	75383.9	94.62	PASS	70-125
N026114-002B	SAMP	1	114657.9	108669.5	105.51	PASS	70-125	77021.2	75383.9	102.17	PASS	70-125
N026114-002B	SAMP	5	107767.6	108669.5	99.17	PASS	70-125	75851.7	75383.9	100.62	PASS	70-125
CCV2	CCV	1	116255.6	108669.5	106.98	PASS	70-125	81002.8	75383.9	107.45	PASS	70-125
CCB2	CCB	1	107541.2	108669.5	98.96	PASS	70-125	76206.4	75383.9	101.09	PASS	70-125
N026114-003B	SAMP	1	101677.9	108669.5	93.57	PASS	70-125	66649.4	75383.9	88.41	PASS	70-125
N026114-003B	SAMP	5	104718.7	108669.5	96.36	PASS	70-125	72688.9	75383.9	96.42	PASS	70-125
N026114-004B	SAMP	1	111340.7	108669.5	102.46	PASS	70-125	76384.9	75383.9	101.33	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	108146.7	108669.5	99.52	PASS	70-125	75407.1	75383.9	100.03	PASS	70-125
N026114-005B	SAMP	1	114328.4	108669.5	105.21	PASS	70-125	78548.7	75383.9	104.2	PASS	70-125
N026114-006B	SAMP	1	111068.7	108669.5	102.21	PASS	70-125	76485.5	75383.9	101.46	PASS	70-125
N026114-007B	SAMP	1	111171.2	108669.5	102.3	PASS	70-125	76291.8	75383.9	101.2	PASS	70-125
N026114-008B	SAMP	1	107032.9	108669.5	98.49	PASS	70-125	72180.6	75383.9	95.75	PASS	70-125
N026114-008B	SAMP	250	105325.5	108669.5	96.92	PASS	70-125	76011.1	75383.9	100.83	PASS	70-125
N026134-001B	SAMP	1	102053	108669.5	93.91	PASS	70-125	67762.7	75383.9	89.89	PASS	70-125
CCV3	CCV	1	114484.2	108669.5	105.35	PASS	70-125	80016.9	75383.9	106.15	PASS	70-125
CCB3	CCB	1	105695.7	108669.5	97.26	PASS	70-125	74672.9	75383.9	99.057	PASS	70-125
N026134-001B	SAMP	5	96036.9	108669.5	88.38	PASS	70-125	68026.3	75383.9	90.24	PASS	70-125
N026134-002B	SAMP	1	96891.7	108669.5	89.16	PASS	70-125	64326.6	75383.9	85.33	PASS	70-125
N026134-002B	SAMP	5	100894.5	108669.5	92.85	PASS	70-125	68618.9	75383.9	91.026	PASS	70-125
N026134-003B	SAMP	1	101029.7	108669.5	92.97	PASS	70-125	62556.5	75383.9	82.98	PASS	70-125
N026134-003B	SAMP	5	97045.9	108669.5	89.3	PASS	70-125	67117.8	75383.9	89.035	PASS	70-125
N026134-004B	SAMP	1	90800.8	108669.5	83.56	PASS	70-125	55923.9	75383.9	74.19	PASS	70-125
N026134-004B	SAMP	5	97931.5	108669.5	90.12	PASS	70-125	68227.2	75383.9	90.51	PASS	70-125
N026156-001B	SAMP	1	104288.3	108669.5	95.97	PASS	70-125	69617.7	75383.9	92.35	PASS	70-125
N026156-001B	SAMP	5	104071	108669.5	95.77	PASS	70-125	73014.1	75383.9	96.86	PASS	70-125
N026156-002B	SAMP	1	93060	108669.5	85.64	PASS	70-125	59239.9	75383.9	78.58	PASS	70-125
CCV4	CCV	1	114261.8	108669.5	105.15	PASS	70-125	80191.4	75383.9	106.38	PASS	70-125
CCB4	CCB	1	106708.3	108669.5	98.2	PASS	70-125	75748.8	75383.9	100.48	PASS	70-125
N026156-002B	SAMP	5	94655.8	108669.5	87.1	PASS	70-125	65986.8	75383.9	87.53	PASS	70-125
N026156-003B	SAMP	1	92374.8	108669.5	85.005	PASS	70-125	59746.2	75383.9	79.26	PASS	70-125
N026156-003B	SAMP	5	97973.4	108669.5	90.16	PASS	70-125	68021.6	75383.9	90.23	PASS	70-125
N026114-007B	SAMP	1	109267.9	108669.5	100.55	PASS	70-125	75495.4	75383.9	100.15	PASS	70-125
N026156-001B	SAMP	1	103436.3	108669.5	95.18	PASS	70-125	69811.4	75383.9	92.61	PASS	70-125
CCV5	CCV	1	114182.1	108669.5	105.07	PASS	70-125	81458.1	75383.9	108.06	PASS	70-125
CCB5	CCB	1	106189	108669.5	97.72	PASS	70-125	76772.2	75383.9	101.84	PASS	70-125
LLCCV1	CCV2	1	118743.3	108669.5	109.27	PASS	70-125	86262.6	75383.9	114.43	PASS	70-125
ICSA2	ICSA	1	97881.4	108669.5	90.073	PASS	70-125	70191.9	75383.9	93.11	PASS	70-125
ICSAB2	ICSAB	1	101874.4	108669.5	93.75	PASS	70-125	71887.8	75383.9	95.36	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	97228.3	97228.3	100	PASS	70-125	2243050.3	2243050.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	100930.4	97228.3	103.81	PASS	70-125	2469937	2243050.3	110.12	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	98659.8	97228.3	101.47	PASS	70-125	2483146.6	2243050.3	110.7	PASS	70-125
Std3-5/50 ppb	ICAL	1	98939.5	97228.3	101.76	PASS	70-125	2511454.4	2243050.3	111.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	97209.3	97228.3	99.98	PASS	70-125	2474294.3	2243050.3	110.31	PASS	70-125
Std5-20/200 ppb	ICAL	1	94628.7	97228.3	97.33	PASS	70-125	2454264.4	2243050.3	109.42	PASS	70-125
Std6-40/400 ppb	ICAL	1	96625.8	97228.3	99.38	PASS	70-125	2482662.3	2243050.3	110.68	PASS	70-125
Std7-100/1000 ppb	ICAL	1	93800.7	97228.3	96.47	PASS	70-125	2384160	2243050.3	106.29	PASS	70-125
Std8-200/2000 ppb	ICAL	1	91903	97228.3	94.52	PASS	70-125	2381162.9	2243050.3	106.16	PASS	70-125
ICV	ICV	1	86167.9	97228.3	88.62	PASS	70-125	2228240.3	2243050.3	99.34	PASS	70-125
ICB	ICB	1	87460.3	97228.3	89.95	PASS	70-125	2309777.1	2243050.3	102.97	PASS	70-125
LLICV	CCV1	1	80676.4	97228.3	82.98	PASS	70-125	2474165.9	2243050.3	110.3	PASS	70-125
ICSA1	ICSA	1	93276.3	97228.3	95.94	PASS	70-125	2258824.1	2243050.3	100.7	PASS	70-125
ICSAB1	ICSAB	1	83995.5	97228.3	86.39	PASS	70-125	2106118	2243050.3	93.9	PASS	70-125
MB-63964	MBLK	1	94979.2	97228.3	97.69	PASS	70-125	2437198.1	2243050.3	108.66	PASS	70-125
LCS-63964	LCS	1	87657.8	97228.3	90.16	PASS	70-125	2287154.3	2243050.3	101.97	PASS	70-125
N026093-001B	SAMP	1	70381.4	97228.3	72.39	PASS	70-125	1649844.5	2243050.3	73.55	PASS	70-125
N026093-001B	SAMP	5	82467.9	97228.3	84.82	PASS	70-125	1995048	2243050.3	88.94	PASS	70-125
N026093-001B-PS	PS	1	71564.1	97228.3	73.6	PASS	70-125	1725680.7	2243050.3	76.93	PASS	70-125
N026093-001B-MS	MS	1	70416.1	97228.3	72.42	PASS	70-125	1703297.3	2243050.3	75.94	PASS	70-125
N026093-001B-MSD	MSD	1	69236.7	97228.3	71.21	PASS	70-125	1669620.7	2243050.3	74.44	PASS	70-125
N026093-002B	SAMP	1	80149.4	97228.3	82.43	PASS	70-125	1923888.4	2243050.3	85.77	PASS	70-125
N026093-003B	SAMP	1	81299.3	97228.3	83.62	PASS	70-125	1958002.7	2243050.3	87.29	PASS	70-125
N026093-001B	SAMP	10	84272.5	97228.3	86.67	PASS	70-125	2051090.3	2243050.3	91.44	PASS	70-125
CCV1	CCV	1	96456.1	97228.3	99.21	PASS	70-125	2488319.9	2243050.3	110.93	PASS	70-125
CCB1	CCB	1	89993.2	97228.3	92.56	PASS	70-125	2353437	2243050.3	104.92	PASS	70-125
N026093-001B	SAMP	50	84657.1	97228.3	87.07	PASS	70-125	2148135.7	2243050.3	95.77	PASS	70-125
N026093-001B-PS	PS	10	80748.3	97228.3	83.05	PASS	70-125	1991382.2	2243050.3	88.78	PASS	70-125
N026093-001B-MS	MS	10	80485.8	97228.3	82.78	PASS	70-125	2018637.8	2243050.3	90	PASS	70-125
N026093-001B-MSD	MSD	10	79244.1	97228.3	81.5	PASS	70-125	2017297.5	2243050.3	89.94	PASS	70-125
N026093-002B	SAMP	5	81033	97228.3	83.34	PASS	70-125	2041794.2	2243050.3	91.028	PASS	70-125
N026093-003B	SAMP	5	79496.5	97228.3	81.76	PASS	70-125	2025732.5	2243050.3	90.31	PASS	70-125
N026114-001B	SAMP	1	61313.9	97228.3	63.062	NR!	70-125	1525583.2	2243050.3	68.014	NR!	70-125
N026114-001B	SAMP	5	77150.9	97228.3	79.35	PASS	70-125	1912768.3	2243050.3	85.28	PASS	70-125
N026114-002B	SAMP	1	82700.2	97228.3	85.058	PASS	70-125	2046261	2243050.3	91.23	PASS	70-125
N026114-002B	SAMP	5	82577.2	97228.3	84.93	PASS	70-125	2096692.1	2243050.3	93.48	PASS	70-125
CCV2	CCV	1	89554.6	97228.3	92.11	PASS	70-125	2404152.8	2243050.3	107.18	PASS	70-125
CCB2	CCB	1	83822.9	97228.3	86.21	PASS	70-125	2292772	2243050.3	102.22	PASS	70-125
N026114-003B	SAMP	1	68721.8	97228.3	70.68	PASS	70-125	1750106.1	2243050.3	78.023	PASS	70-125
N026114-003B	SAMP	5	77720.4	97228.3	79.94	PASS	70-125	1992650.8	2243050.3	88.84	PASS	70-125
N026114-004B	SAMP	1	83055.2	97228.3	85.42	PASS	70-125	2054912.9	2243050.3	91.61	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	83654.7	97228.3	86.039	PASS	70-125	2107421.9	2243050.3	93.95	PASS	70-125
N026114-005B	SAMP	1	85978.1	97228.3	88.43	PASS	70-125	2166242.6	2243050.3	96.58	PASS	70-125
N026114-006B	SAMP	1	84559.3	97228.3	86.97	PASS	70-125	2103888.9	2243050.3	93.8	PASS	70-125
N026114-007B	SAMP	1	87153	97228.3	89.64	PASS	70-125	2114808.1	2243050.3	94.28	PASS	70-125
N026114-008B	SAMP	1	79709.3	97228.3	81.98	PASS	70-125	1998880.9	2243050.3	89.11	PASS	70-125
N026114-008B	SAMP	250	83394.5	97228.3	85.77	PASS	70-125	2235692.6	2243050.3	99.67	PASS	70-125
N026134-001B	SAMP	1	69764.3	97228.3	71.75	PASS	70-125	1795778.6	2243050.3	80.06	PASS	70-125
CCV3	CCV	1	86586.8	97228.3	89.055	PASS	70-125	2386721.2	2243050.3	106.41	PASS	70-125
CCB3	CCB	1	83164.8	97228.3	85.54	PASS	70-125	2265081.4	2243050.3	100.98	PASS	70-125
N026134-001B	SAMP	5	74564.5	97228.3	76.69	PASS	70-125	1908735.6	2243050.3	85.096	PASS	70-125
N026134-002B	SAMP	1	64618.9	97228.3	66.46	NR!	70-125	1664536	2243050.3	74.21	PASS	70-125
N026134-002B	SAMP	5	71691	97228.3	73.73	PASS	70-125	1967631.2	2243050.3	87.72	PASS	70-125
N026134-003B	SAMP	1	62123.1	97228.3	63.89	NR!	70-125	1605688.4	2243050.3	71.59	PASS	70-125
N026134-003B	SAMP	5	70929.3	97228.3	72.95	PASS	70-125	1867537.2	2243050.3	83.26	PASS	70-125
N026134-004B	SAMP	1	56047.3	97228.3	57.65	NR!	70-125	1434636.9	2243050.3	63.96	NR!	70-125
N026134-004B	SAMP	5	68138	97228.3	70.08	PASS	70-125	1850107.2	2243050.3	82.48	PASS	70-125
N026156-001B	SAMP	1	72393.8	97228.3	74.46	PASS	70-125	1858193.3	2243050.3	82.84	PASS	70-125
N026156-001B	SAMP	5	78373.3	97228.3	80.61	PASS	70-125	2026281.2	2243050.3	90.34	PASS	70-125
N026156-002B	SAMP	1	59376.6	97228.3	61.069	NR!	70-125	1504872.3	2243050.3	67.09	NR!	70-125
CCV4	CCV	1	85204.2	97228.3	87.63	PASS	70-125	2428459.4	2243050.3	108.27	PASS	70-125
CCB4	CCB	1	80957.4	97228.3	83.27	PASS	70-125	2286561	2243050.3	101.94	PASS	70-125
N026156-002B	SAMP	5	71246.4	97228.3	73.28	PASS	70-125	1823694.6	2243050.3	81.3	PASS	70-125
N026156-003B	SAMP	1	58490.5	97228.3	60.16	NR!	70-125	1529280.9	2243050.3	68.18	NR!	70-125
N026156-003B	SAMP	5	70812.3	97228.3	72.83	PASS	70-125	1857493.7	2243050.3	82.81	PASS	70-125
N026114-007B	SAMP	1	81942.1	97228.3	84.28	PASS	70-125	2095113.6	2243050.3	93.4	PASS	70-125
N026156-001B	SAMP	1	72040.1	97228.3	74.094	PASS	70-125	1851139.5	2243050.3	82.53	PASS	70-125
CCV5	CCV	1	89812.7	97228.3	92.37	PASS	70-125	2413691.5	2243050.3	107.61	PASS	70-125
CCB5	CCB	1	83180.4	97228.3	85.55	PASS	70-125	2295865.5	2243050.3	102.35	PASS	70-125
LLCCV1	CCV2	1	95088.2	97228.3	97.8	PASS	70-125	2615823.9	2243050.3	116.62	PASS	70-125
ICSA2	ICSA	1	71743.9	97228.3	73.79	PASS	70-125	2048243.3	2243050.3	91.32	PASS	70-125
ICSAB2	ICSAB	1	76755.7	97228.3	78.94	PASS	70-125	1999888	2243050.3	89.16	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026134
Test Method: EPA 6020
Analysis Date: 10/12/2017

Matrix: Groundwater
Batch No.: 63964

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr and Se. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026093-001B DT 5X	Arsenic	ug/L	4.399552	PASS	4.206121	4.60%	10
N026093-001B DT 5X	Chromium	ug/L	0	NA	0		10
N026093-001B DT 50X	Manganese	ug/L	998.3813	PASS	954.6786	4.58%	10
N026093-001B DT 5X	Molybdenum	ug/L	64.51221	PASS	61.87842	4.26%	10
N026093-001B DT 5X	Selenium	ug/L	0.16919	NA	0.096195	75.88%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.568	0.10	10.00	4.206	93.6	80	120				
Molybdenum	71.753	0.50	10.00	61.88	98.7	80	120				
Selenium	9.616	0.50	10.00	0.09619	95.2	80	120				

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1082.468	5.0	100.0	954.7	128	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026134
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.670	1.0	10.00	0	86.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026156

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 28, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (3.3 ug/L) and hexavalent chromium (1.2 ug/L) for sample N026156-001 (MW-63-065-Q317) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N026156-002 and -003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Because the results for total dissolved chromium (3.3 ug/L) and hexavalent chromium (1.2 ug/L) for sample N026156-001 (MW-63-065-Q317) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 3.3 and 1.8 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

ASSET LABORATORIES
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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026156
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026156-001A	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-001B	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-001C	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-001D	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-002A	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-002B	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-002C	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-002D	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-003A	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-003B	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-003C	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-003D	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-004A	MW-708-Q317	Groundwater	9/28/2017 10:15:00 AM	9/28/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170929C**	QC Batch: **R118199**			PrepDate			Analyst: **LR**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	9/29/2017 10:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170929C**	QC Batch: **R118199**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/29/2017 10:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170929C**	QC Batch: **R118199**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/29/2017 10:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026156-003DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**118199**
Client ID:	**ZZZZZZ**	Batch ID:	**R118199**	TestNo:	**EPA 120.1**			Analysis Date:	**9/29/2017**	SeqNo:	**2778308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16180.000	0.10						16110	0.434	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171002A** QC Batch: **R118232**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	1.2	0.033	0.20		µg/L	1	10/2/2017 12:55 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	3.3	0.019	1.0		µg/L	1	10/12/2017 10:22 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171002A** QC Batch: **R118232**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	110	0.66	4.0		µg/L	20	10/2/2017 02:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	99	0.019	1.0		µg/L	1	10/12/2017 10:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171002A** QC Batch: **R118232**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	110	0.66	4.0		µg/L	20	10/2/2017 02:29 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	97	0.019	1.0		µg/L	1	10/12/2017 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-708-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:15:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171002A**	QC Batch: **R118232**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/2/2017 01:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118232**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **PBW**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118232**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **LCSW**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.038	0.20	5.000	0	101	90	110				

Sample ID **N026156-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ZZZZZZ**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.130	0.20						1.198	5.86	20	

Sample ID **N026156-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ZZZZZZ**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.160	0.20	1.000	1.198	96.1	90	110				

Sample ID **N026156-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ZZZZZZ**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.975	0.20	1.000	0	97.5	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026156-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777858

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	208.306	4.0	100.0	108.9	99.4	90	110				

Sample ID	N026156-002AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777859

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	213.536	4.0	100.0	108.9	105	90	110	208.3	2.48	20	

Sample ID	N026156-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777861

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	211.030	4.0	100.0	109.5	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-63964	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	PBW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-63964	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	LCSW	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789557

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118491
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789562

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.4	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.85	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.88	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118390	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	PBW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118390	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	LCSW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID	N026134-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03340	0	20	

Sample ID	N026134-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785154

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.735	0.25	2.500	3.209	101	75	125				

Sample ID	N026134-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785155

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.759	0.25	2.500	3.209	102	75	125	5.735	0.418	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.4	0.025	0.10		µg/L	1	10/12/2017 11:12 AM
Manganese	1.7	0.056	0.50		µg/L	1	10/12/2017 11:12 AM
Molybdenum	16	0.039	0.50		µg/L	1	10/12/2017 11:12 AM
Selenium	0.97	0.028	0.50		µg/L	1	10/12/2017 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**				PrepDate	**9/29/2017**	Analyst: **CEI**
Arsenic	11	0.025	0.10		µg/L	1	10/12/2017 10:33 AM
Manganese	57	0.056	0.50		µg/L	1	10/12/2017 10:33 AM
Molybdenum	78	0.19	2.5		µg/L	5	10/12/2017 10:50 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	11	0.025	0.10		µg/L	1	10/12/2017 10:55 AM
Manganese	60	0.056	0.50		µg/L	1	10/12/2017 10:55 AM
Molybdenum	75	0.19	2.5		µg/L	5	10/12/2017 11:01 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 11:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200	Others ✓	LEVEL III	3. Container Intact
Title: SR. Technician	Phone: 916-786-3302 Fax:	Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 9-28-17	Sampled By: Gary Clift	P.O.#	Global ID:	Regulatory	5. IR number 2
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State: CA	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 9-28-17				Sample Temp: 2-6°
Project Number: RC000753.0801					Courier: Tracking No.:

Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Metals Dissolved (6020AFF) Manganese; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Dissolved Arsenic SW 6020 (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 (500 mL poly)	Bromide EPA 300.0	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026156 - 01	MW-63-065-Q317	9/28/2017	831		X		X	X	X	X	X		X			X			E	4	P	BN
2	- 02	MW-72-080-Q317	9/28/2017	951		X		X	X	X	X	X		X			X			E	4	P	BN
3	- 03	MW-903-Q317	9/28/2017	1001		X		X	X	X	X	X		X			X			E	4	P	BN
4	- 04	MW-708-Q317	9/28/2017	1015		X														E	1	P	BN
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Relinquished by (Signature and Printed Name)	Date/Time
GARY CLIFT 9.28.17			9/28/17 1574
	9/28/17 2244		9/28/17 2244

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		
Others/Specify:	B	(NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/28/2017	Workorder:	N026156
Rep sample Temp (Deg C):	2.6	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/5/2017

Reviewed By: 10/11/2017

ASSET Laboratories

WORK ORDER Summary

28-Sep-17

WorkOrder: N026156

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026156-001A	MW-63-065-Q317	9/28/2017 8:31:00 AM	10/12/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-001B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026156-001C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026156-001D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026156-002A	MW-72-080-Q317	9/28/2017 9:51:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-002B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026156-002C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026156-002D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026156-003A	MW-903-Q317	9/28/2017 10:01:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-003B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026156-003C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026156-003D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026156-004A	MW-708-Q317	9/28/2017 10:15:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-005A	FOLDER	10/12/2017	10/12/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/12/2017		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories

WORK ORDER Summary

28-Sep-17

WorkOrder: N026156

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026156-005A	FOLDER	10/12/2017	10/12/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N026156

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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ASSET Laboratories Work Order: N026156

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October 13, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026156

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on September 28, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026156

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (3.3 ug/L) and hexavalent chromium (1.2 ug/L) for sample N026156-001 (MW-63-065-Q317) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N026156-002 and -003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Because the results for total dissolved chromium (3.3 ug/L) and hexavalent chromium (1.2 ug/L) for sample N026156-001 (MW-63-065-Q317) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 3.3 and 1.8 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *13-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026156
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026156-001A	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-001B	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-001C	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-001D	MW-63-065-Q317	Groundwater	9/28/2017 8:31:00 AM	9/28/2017	10/13/2017
N026156-002A	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-002B	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-002C	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-002D	MW-72-080-Q317	Groundwater	9/28/2017 9:51:00 AM	9/28/2017	10/13/2017
N026156-003A	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-003B	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-003C	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-003D	MW-903-Q317	Groundwater	9/28/2017 10:01:00 AM	9/28/2017	10/13/2017
N026156-004A	MW-708-Q317	Groundwater	9/28/2017 10:15:00 AM	9/28/2017	10/13/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170929C**	QC Batch: **R118199**			PrepDate			Analyst: **LR**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	9/29/2017 10:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170929C**	QC Batch: **R118199**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/29/2017 10:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_170929C**	QC Batch: **R118199**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/29/2017 10:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N026156-003DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:				RunNo: **118199**		
Client ID: **ZZZZZZ**	Batch ID: **R118199**	TestNo: **EPA 120.1**		Analysis Date: **9/29/2017**				SeqNo: **2778308**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16180.000	0.10						16110	0.434	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_171002A** QC Batch: **R118232** PrepDate							Analyst: **RAB**
Hexavalent Chromium	1.2	0.033	0.20		µg/L	1	10/2/2017 12:55 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A **EPA 6020**							
RunID: **NV00922-ICP7_171012A** QC Batch: **63964** PrepDate **9/29/2017**							Analyst: **CEI**
Chromium	3.3	0.019	1.0		µg/L	1	10/12/2017 10:22 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_171002A** QC Batch: **R118232**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	110	0.66	4.0		µg/L	20	10/2/2017 02:01 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A **EPA 6020**							
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	99	0.019	1.0		µg/L	1	10/12/2017 10:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171002A** QC Batch: **R118232**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	110	0.66	4.0		µg/L	20	10/2/2017 02:29 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A	**EPA 6020**			
RunID: **NV00922-ICP7_171012A** QC Batch: **63964**				PrepDate	**9/29/2017**		Analyst: **CEI**
Chromium	97	0.019	1.0		µg/L	1	10/12/2017 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-708-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:15:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171002A**	QC Batch: **R118232**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/2/2017 01:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R118232	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	PBW	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777847

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R118232	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	LCSW	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777848

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.038	0.20	5.000	0	101	90	110				

Sample ID	N026156-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777851

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.130	0.20						1.198	5.86	20	

Sample ID	N026156-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777852

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.160	0.20	1.000	1.198	96.1	90	110				

Sample ID	N026156-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777854

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.975	0.20	1.000	0	97.5	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026156-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777858

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	208.306	4.0	100.0	108.9	99.4	90	110				

Sample ID	N026156-002AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777859

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	213.536	4.0	100.0	108.9	105	90	110	208.3	2.48	20	

Sample ID	N026156-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118232
Client ID:	ZZZZZZ	Batch ID:	R118232	TestNo:	EPA 218.6			Analysis Date:	10/2/2017	SeqNo:	2777861

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	211.030	4.0	100.0	109.5	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.056	1.0	10.00	0	111	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.788	1.0	10.00	0	87.9	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.766	1.0	10.00	0	87.7	75	125	8.788	0.246	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 8:31:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.4	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.85	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 10:01:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.88	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R118390**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **PBW**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **LCS-R118390**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **LCSW**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID **N026134-002CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ZZZZZZ**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03340	0	20	

Sample ID **N026134-003CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ZZZZZZ**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.735	0.25	2.500	3.209	101	75	125				

Sample ID **N026134-003CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ZZZZZZ**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.759	0.25	2.500	3.209	102	75	125	5.735	0.418	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026156
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026156-001

Client Sample ID: MW-63-065-Q317
Collection Date: 9/28/2017 8:31:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	1.4	0.025	0.10		µg/L	1	10/12/2017 11:12 AM
Manganese	1.7	0.056	0.50		µg/L	1	10/12/2017 11:12 AM
Molybdenum	16	0.039	0.50		µg/L	1	10/12/2017 11:12 AM
Selenium	0.97	0.028	0.50		µg/L	1	10/12/2017 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q317
Lab Order:	N026156	**Collection Date:**	9/28/2017 9:51:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026156-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**				PrepDate	**9/29/2017**	Analyst: **CEI**
Arsenic	11	0.025	0.10		µg/L	1	10/12/2017 10:33 AM
Manganese	57	0.056	0.50		µg/L	1	10/12/2017 10:33 AM
Molybdenum	78	0.19	2.5		µg/L	5	10/12/2017 10:50 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026156
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026156-003

Client Sample ID: MW-903-Q317
Collection Date: 9/28/2017 10:01:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171012B**	QC Batch: **63964**			PrepDate	**9/29/2017**	Analyst: **CEI**	
Arsenic	11	0.025	0.10		µg/L	1	10/12/2017 10:55 AM
Manganese	60	0.056	0.50		µg/L	1	10/12/2017 10:55 AM
Molybdenum	75	0.19	2.5		µg/L	5	10/12/2017 11:01 AM
Selenium	ND	0.14	2.5		µg/L	5	10/12/2017 11:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-63964**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **PBW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-63964**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **LCSW**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.945	0.10	10.00	0	109	85	115				
Manganese	110.220	0.50	100.0	0	110	85	115				
Molybdenum	10.764	0.50	10.00	0	108	85	115				
Selenium	10.402	0.50	10.00	0	104	85	115				

Sample ID **N026093-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.095	0.10	10.00	4.206	98.9	75	125				
Molybdenum	71.712	0.50	10.00	61.88	98.3	75	125				
Selenium	9.153	0.50	10.00	0.09619	90.6	75	125				

Sample ID **N026093-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/29/2017**	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.860	0.10	10.00	4.206	96.5	75	125	14.09	1.68	20	
Molybdenum	71.221	0.50	10.00	61.88	93.4	75	125	71.71	0.686	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789630

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.682	0.50	10.00	0.09619	95.9	75	125	9.153	5.62	20	

Sample ID	N026093-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1078.607	5.0	100.0	954.7	124	75	125				

Sample ID	N026093-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	9/29/2017	RunNo:	118492
Client ID:	ZZZZZZ	Batch ID:	63964	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/12/2017	SeqNo:	2789639

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1058.805	5.0	100.0	954.7	104	75	125	1079	1.85	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Gary Clift		Phone: 949-727-1400, ext 200	Others ✓	LEVEL III	3. Container Intact
Title: SR. Technician	Phone: 916-786-3302 Fax:	Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 9-28-17	Sampled By: Gary Clift	P.O.#	Global ID:	Regulatory	5. IR number 2
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*			Specify State: CA	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 9-28-17				Sample Temp: 2-6°
Project Number: RC000753.0801					Courier: Tracking No.:

Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	Dissolved Arsenic SW 6020 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Bromide EPA 300.0	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026156 - 01	MW-63-065-Q317	9/28/2017	831		X		X	X	X	X	X		X			X			E	4	P	BN
2	- 02	MW-72-080-Q317	9/28/2017	951		X		X	X	X	X	X		X			X			E	4	P	BN
3	- 03	MW-903-Q317	9/28/2017	1001		X		X	X	X	X	X		X			X			E	4	P	BN
4	- 04	MW-708-Q317	9/28/2017	1015		X														E	1	P	BN
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Relinquished by (Signature and Printed Name)	Date/Time
GARY CLIFT 9.28.17			9/28/17 1574
	9/28/17 2244		9/28/17 2244

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		
Others/Specify:	B	(NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/28/2017	Workorder:	N026156
Rep sample Temp (Deg C):	2.6	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 10/5/2017 Reviewed By: 10/11/2017

ASSET Laboratories

WORK ORDER Summary

28-Sep-17

WorkOrder: N026156

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026156-001A	MW-63-065-Q317	9/28/2017 8:31:00 AM	10/12/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-001B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026156-001C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026156-001D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026156-002A	MW-72-080-Q317	9/28/2017 9:51:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-002B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026156-002C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026156-002D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026156-003A	MW-903-Q317	9/28/2017 10:01:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-003B			10/12/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/12/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026156-003C			10/12/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N026156-003D			10/12/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026156-004A	MW-708-Q317	9/28/2017 10:15:00 AM	10/12/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026156-005A	FOLDER	10/12/2017	10/12/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/12/2017		Folder	Folder	☐	☐	☐	LAB

WORK ORDER Summary

28-Sep-17

WorkOrder: N026156

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 9/28/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026156-005A	FOLDER	10/12/2017	10/12/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N026156**

NAME	TEST METHOD
Claire Ignacio	EPA 6020
Quennie Manimtim	SM 4500-NO3F
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118199 **Analyst:** LSR

ASSET #: N026156 **Date Analyzed:** 9/29/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/3/2017

2nd Level Reviewer: 10/12/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/28/17 1100
Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 mS/cm	CINV-170620B	9.44 mS/cm @ 22.9°C	% Rec: (90-110%)
1410	170822C	1419 @ 22.8°C	
9976	170615H	10050 @ 22.8°C	
99672	170822E	99400 @ 22.7°C	

	Sample ID	Matrix	Reading	Comments
1	NO26134-001P	H2O	8280 @ 21.1°C	
2	2D		11,120 @ 20.9°C	
3	3D		11,540 @ 21.2°C	
4	4D		15,770 @ 20.7°C	
5	4DDUP		15,790 @ 20.7°C	
6				
7				
8	1413 mS/cm	CINV-170615G	1468 mS/cm @ 21.8°C	
9	10,000	170125E	10230 @ 21.9°C	
10	99672	170831B	100900 @ 22.0°C	
Dup				Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Date: 9/29/17 1015
Analyst: LSR

Standard	Std ID	Reading	Comments
9.25 mS/cm	CINV-170620B	9.48 mS/cm @ 22.8°C	% Rec: (90-110%)
1410	170822C	1447 @ 22.5°C	
9976	170615H	9920 @ 22.6°C	
99672	170822E	99400 @ 22.6°C	

	Sample ID	Matrix	Reading	Comments
1	NO 26156-001D	H2O	6650 @ 21.4°C	
2	2D		16260 @ 21.2°C	
3	3D		16110 @ 20.9°C	
4	3DDUP		16180 @ 21.5°C	
5				
6				
7				Julia Ramit 10/3/2017
8				
9	1413 mS/cm	CINV-170615G	1463 mS/cm @ 22.4°C	
10	10000	170125E	10320 @ 22.5°C	
Dup	99672	170831B	100600 @ 22.5°C	Accept: 10% water, 20% soil
	Std Chk:			% Rec: (90-110%)

Logbook # 5

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R118232
ASSET #: N026156

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 10/2/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)	X			X		
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X				X	
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X	X		
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 10/7/2017

2nd Level Reviewer 10/13/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N026156-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 1.1982 * 1$$

$$Cr^{+6}, \mu g/L = 1.20$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 1.2}$$

rba 10/7/2017

ANALYSIS RUN LOG

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 9/28/17
Time Prepared: 2305H
Prepared By: RBA

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CLNV - 170620A
NH4OH + NH4SO4 eluent: R170927C
NH4OH + NH4SO4 buffer: R170921A

	Sample ID	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026152-002C	7.72	-	~250mL		to 2mL buffer pH	10mL FV
2)	4C	7.68	-	↓		↓	
3)	5C	7.32	-				
4)	7C	7.49	-				
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 10/2/17
Time Prepared: 1106H
Prepared By: RBA

Slope: 95.7% to 97.1%
pH 4: 4.01 @ 22.9°C
7: 7.00 @ 22.9°C
10: 10.05 @ 23.0°C
LCS:

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CLNV-170620A
NH4OH + NH4SO4 eluent: R171002A
NH4OH + NH4SO4 buffer: R170921A / R170912A

6N NaOH: R170805A

	Sample ID	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N026156-001A	9.20	9.33	~250mL	~250mL	~3drops 6N NaOH	R170921A
2)	2A	9.36	-	↓	↓		↓
3)	3A	9.42	-				
4)	4A	9.57	-				
5)	N026152-001A	9.21	-	~10mL	~10mL		filter prerinsed
6)	N026187-001D[9]	9.28	-	~250mL	~250mL		R170912A
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

rba 10/7/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 10/2/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0524	0.2415	1.2450	2.4569	3.7182	4.9418	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-170814H	IWST-171002A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ICV**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.034	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ZZZZZZ**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.192	0.20	0.2000	0	95.8	80	120				

Sample ID **CCV-1**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ZZZZZZ**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.024	0.20	10.00	0	100	95	105				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **CCV**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.031	0.20	5.000	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **ICB**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **CCB**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118232**
Client ID: **CCB**	Batch ID: **R118232**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2777864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/2/2017

Sample Name	Retention Time	Evaluation
ICV	4.056	
CCV-1	4.065	
CCV-2	4.065	
Average	4.062	
Actual RT Window	3.982 - 4.142	
Applied RT Window	3.862 - 4.262	
MB-R118232	N.A.	N.A.
LCS-R118232	4.065	PASS
N026187-001D	4.040	PASS
N026152-001A	3.673	FAIL
N026156-001A	3.965	PASS
N026156-001ADUP	3.965	PASS
N026156-001AMS	3.965	PASS
N026156-004A	N.A.	N.A.
N026156-004AMS	4.056	PASS
N026156-002A	4.056	PASS
N026156-002AMS	4.056	PASS
N026156-002AMSD	4.048	PASS
N026156-003A	4.048	PASS
N026156-003AMS	4.056	PASS
N026152-001A	3.973	PASS
N026152-001A	4.015	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA



INITIAL CALIBRATION

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

rba 10/7/2017

10/9/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

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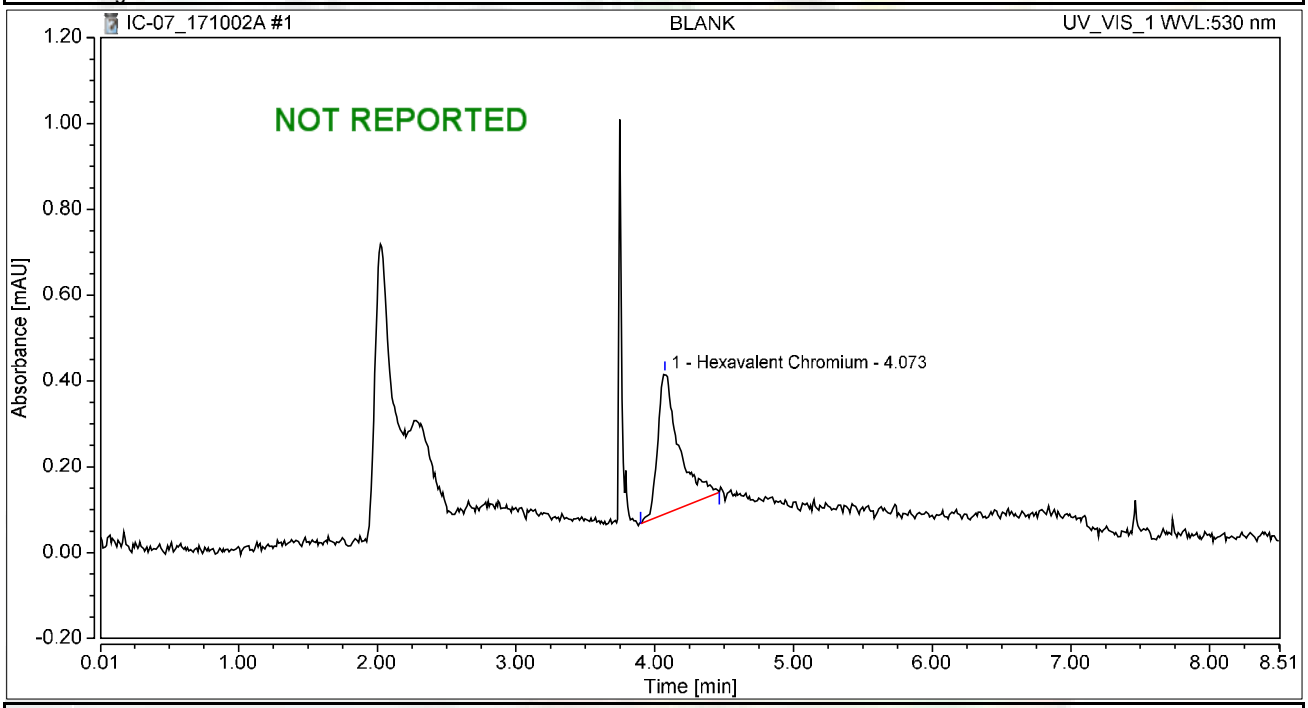
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 09:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

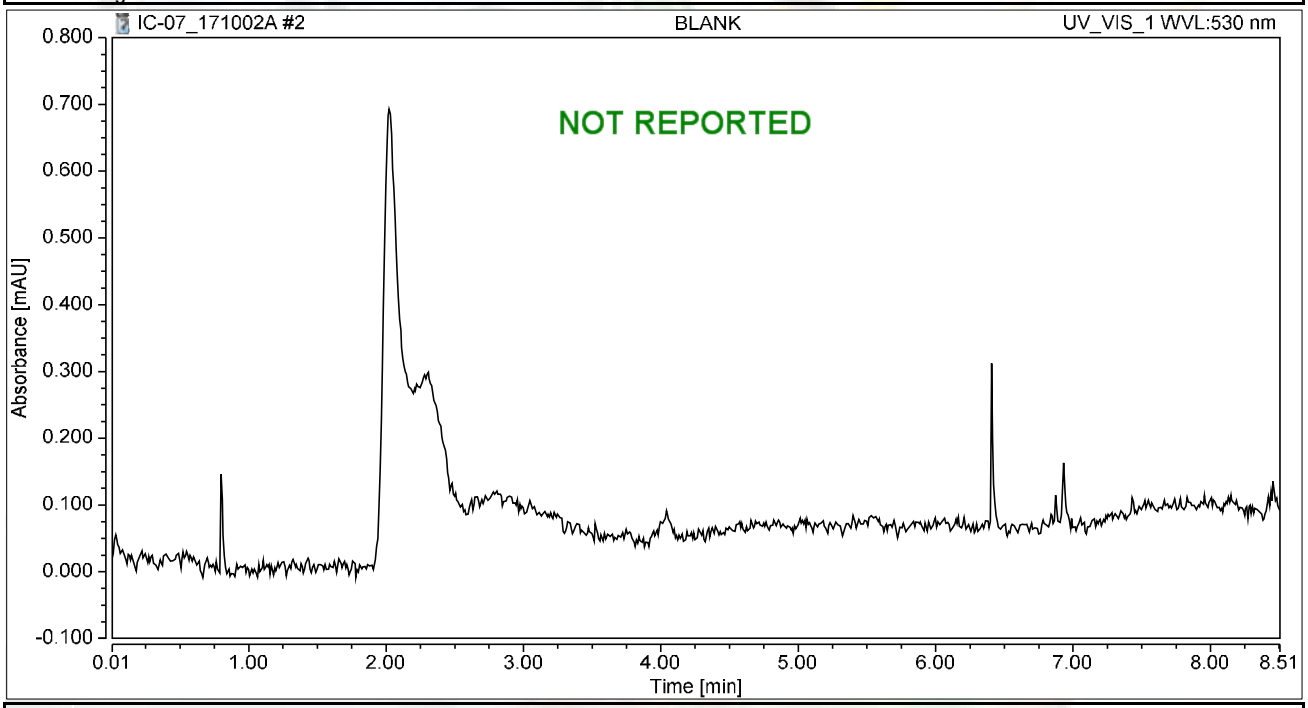
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.059	0.328	100.00	100.00	0.2368
Total:			**0.059**	**0.328**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

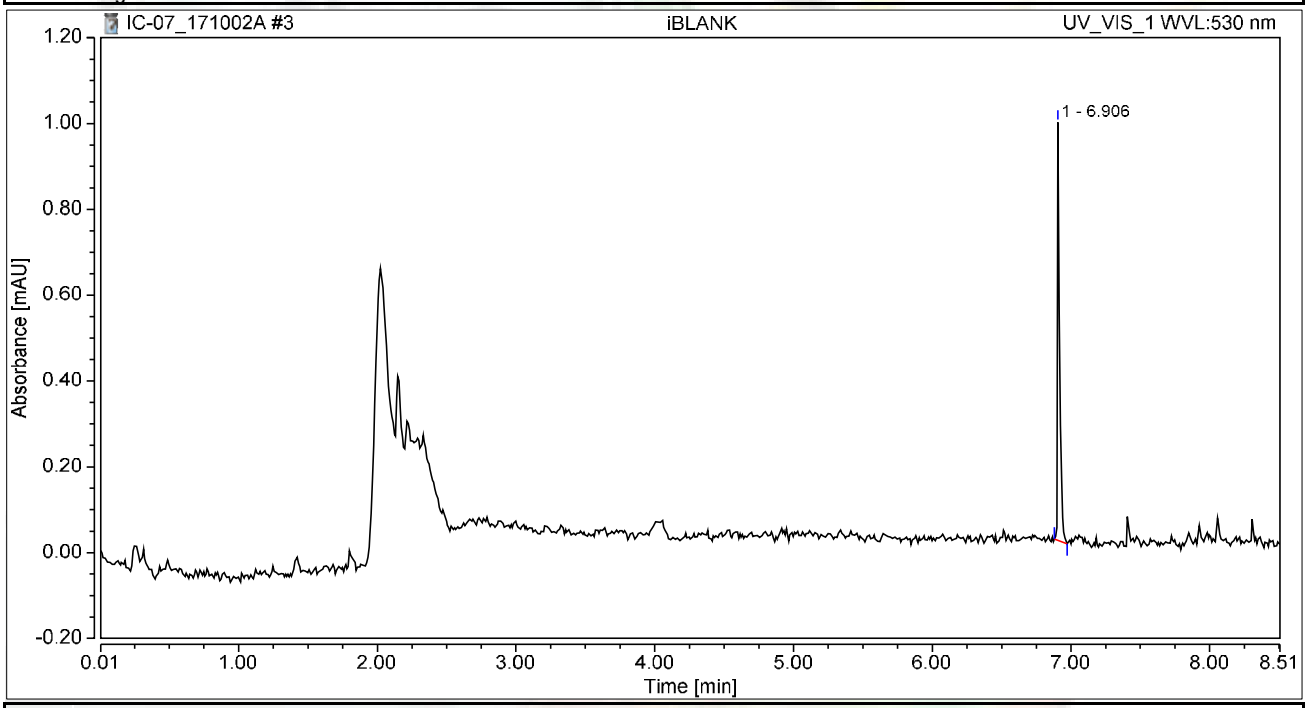
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

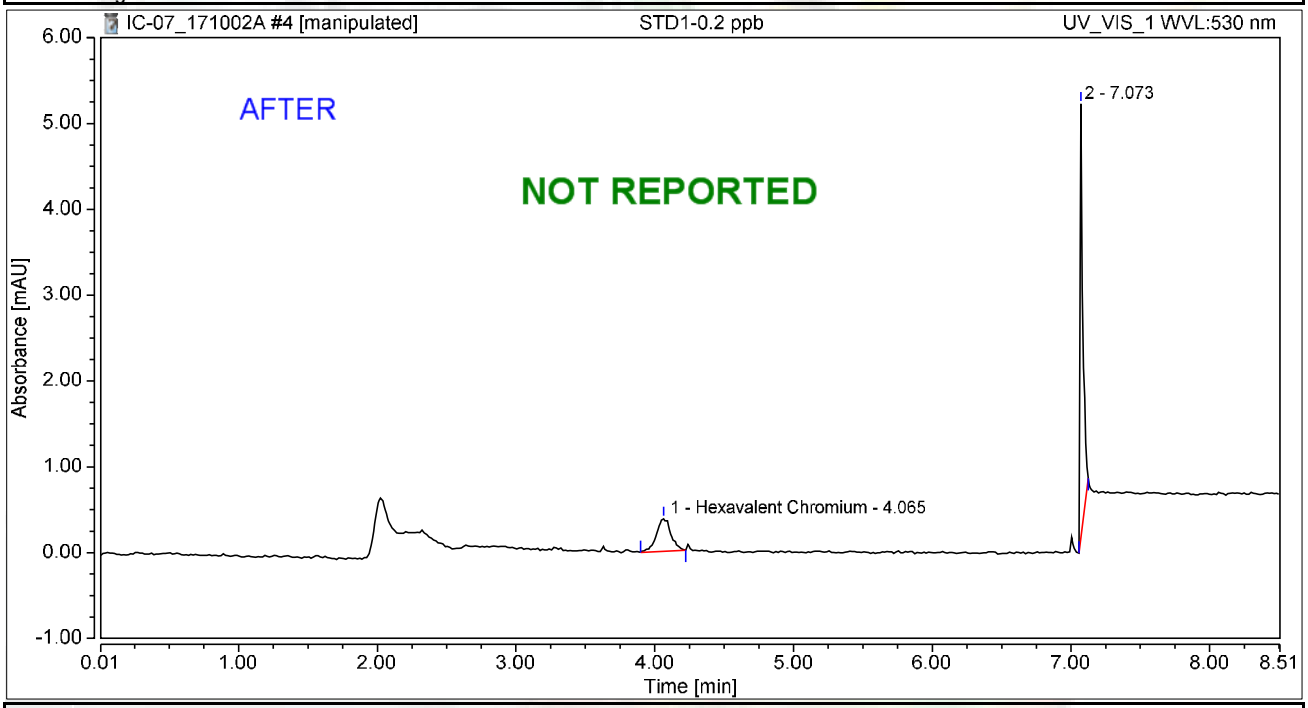
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.906	0.017	0.974	100.00	100.00	n.a.
Total:			**0.017**	**0.974**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.381	26.97	7.06	0.1884
2		7.073	0.126	5.016	73.03	92.94	n.a.
Total:			**0.173**	**5.396**	**100.00**	**100.00**	

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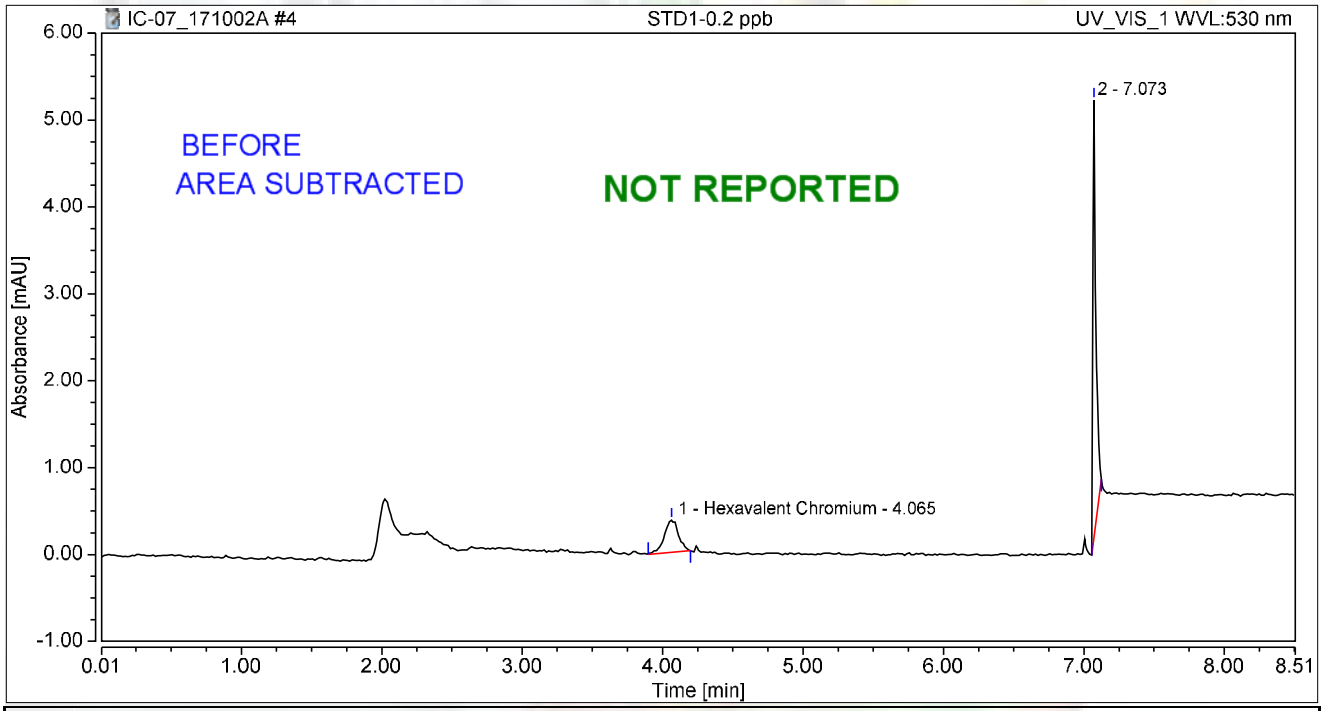
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.044	0.372	25.80	6.90	0.1743
2		7.073	0.126	5.016	74.20	93.10	n.a.
Total:			**0.170**	**5.387**	**100.00**	**100.00**	

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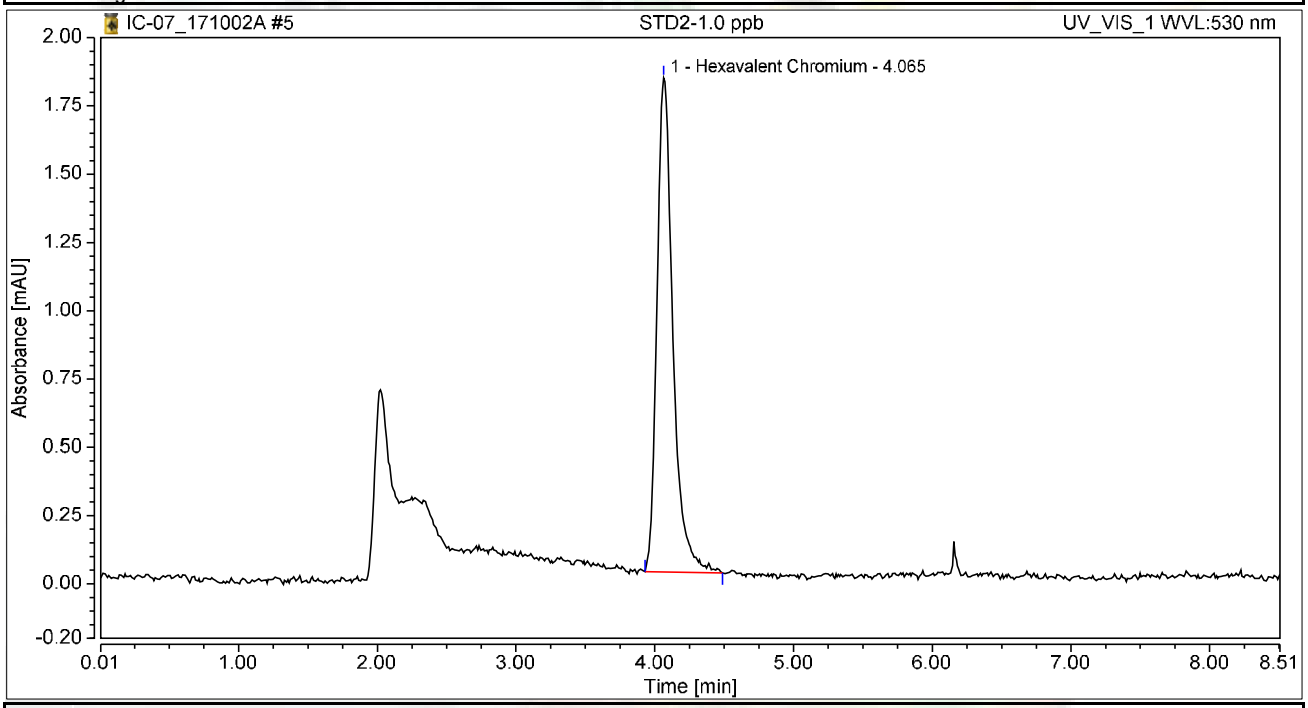
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

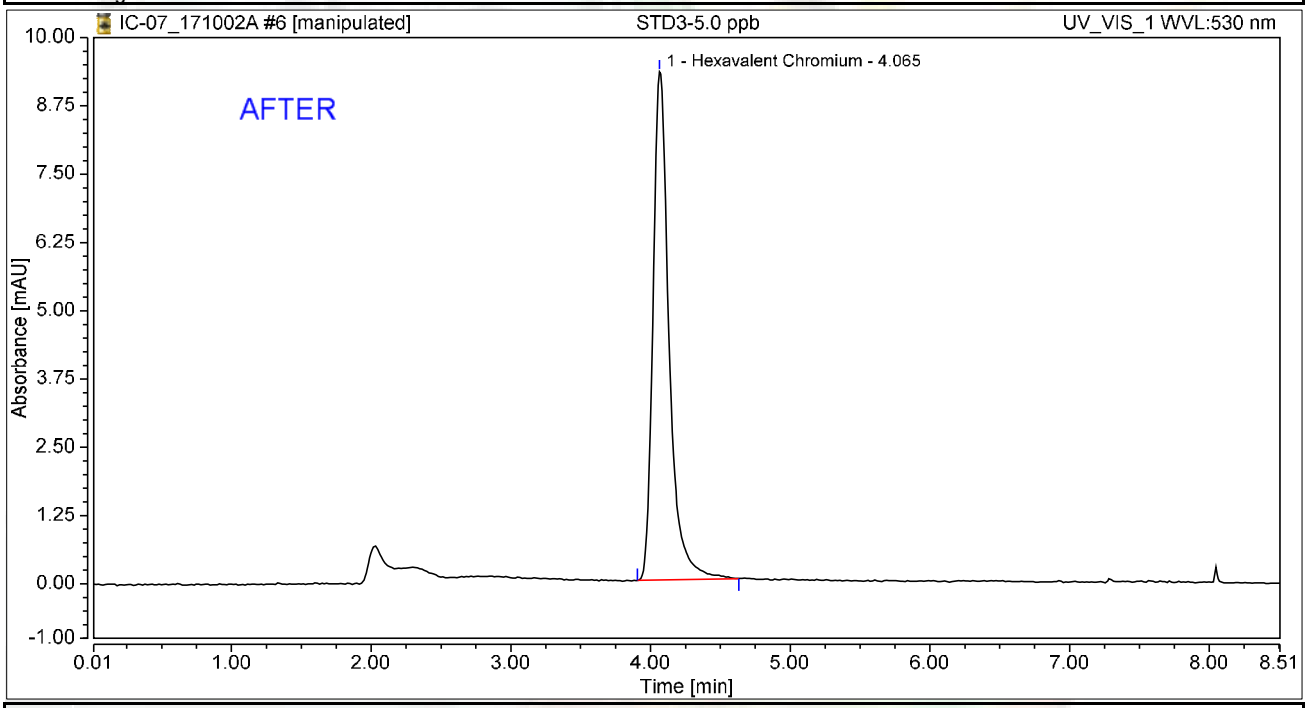
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.242	1.809	100.00	100.00	0.9771
Total:			**0.242**	**1.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.245	9.303	100.00	100.00	5.0364
Total:			**1.245**	**9.303**	**100.00**	**100.00**	

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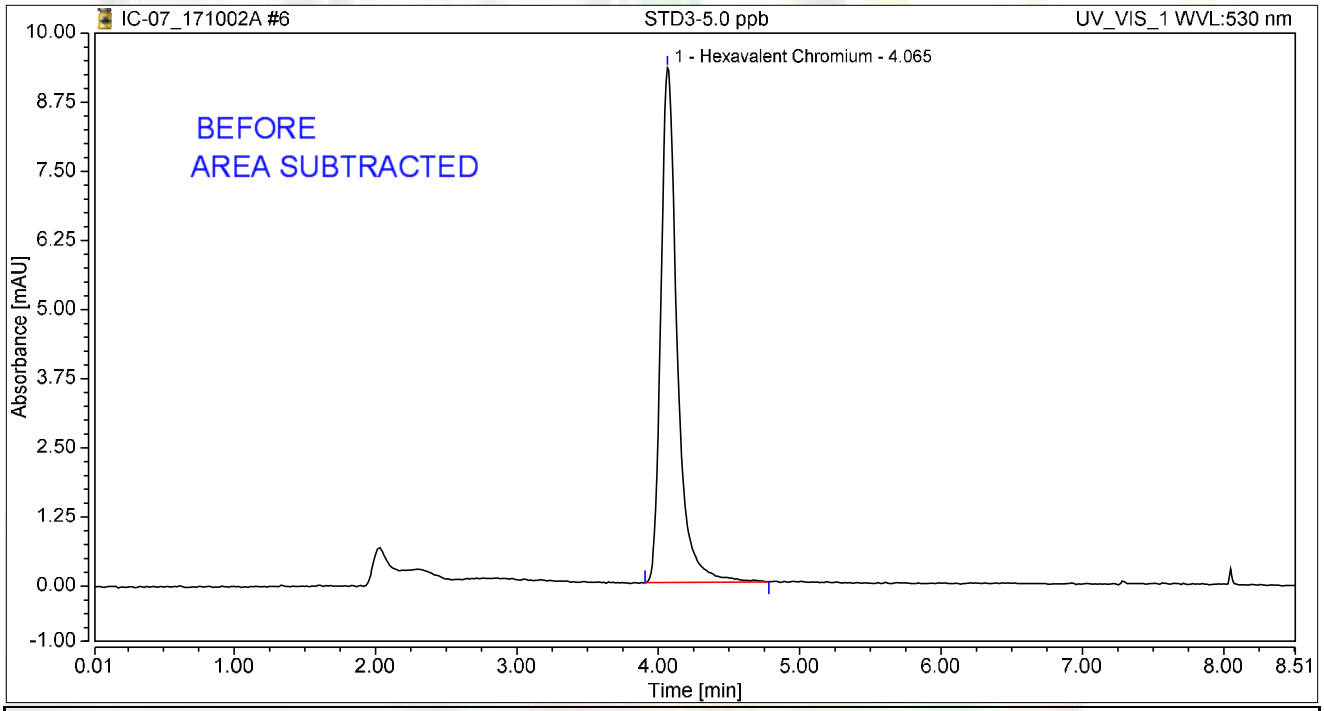
Reviewed by: My first report/integration
Nancy 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.256	9.308	100.00	100.00	4.9927
Total:			**1.256**	**9.308**	**100.00**	**100.00**	

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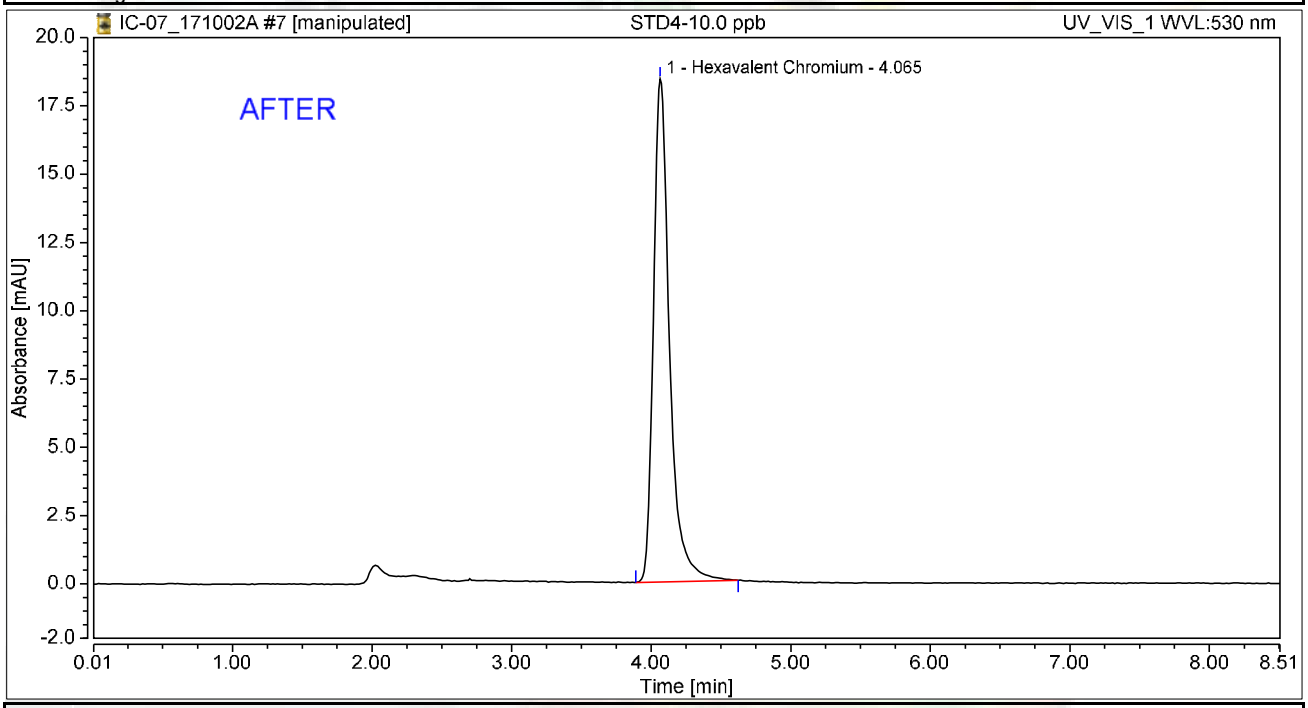
Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.457	18.420	100.00	100.00	9.9392
Total:			**2.457**	**18.420**	**100.00**	**100.00**	

rba 10/7/2017

My first report integration

Reviewed by: Nancy 10/9/2017

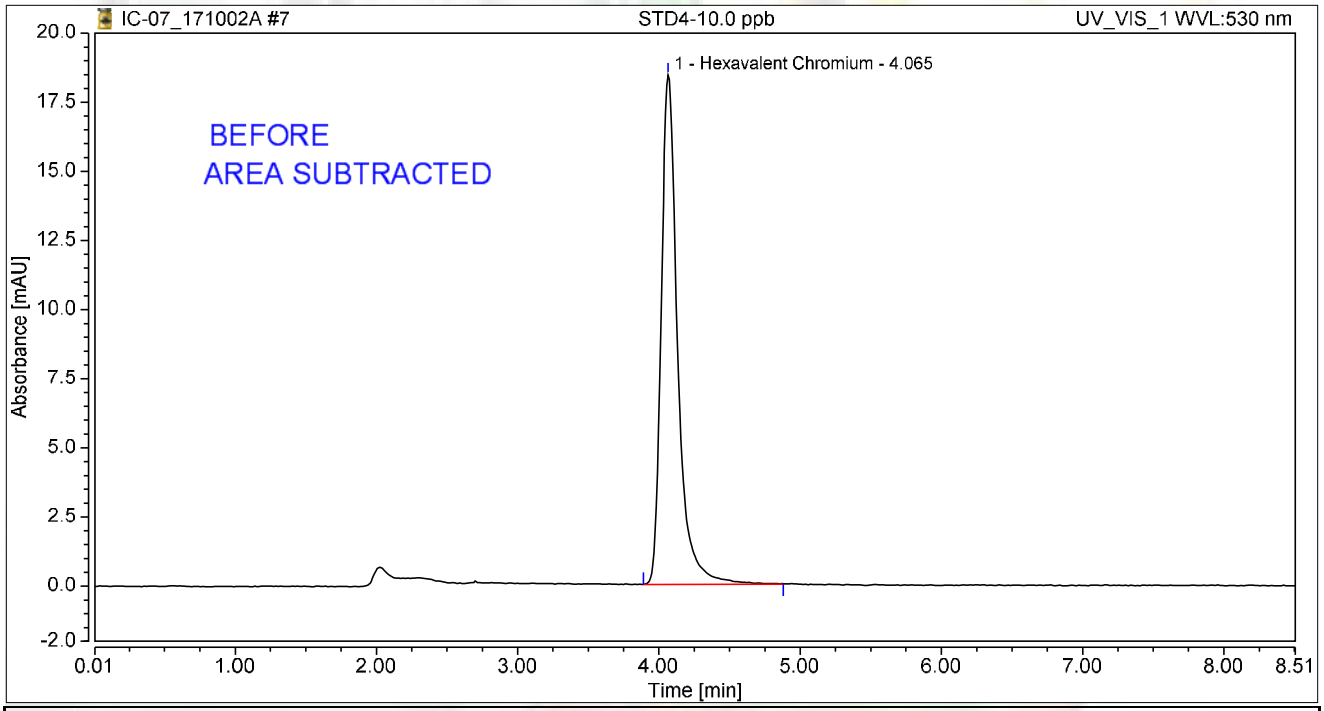
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.489	18.435	100.00	100.00	9.8947
Total:			**2.489**	**18.435**	**100.00**	**100.00**	

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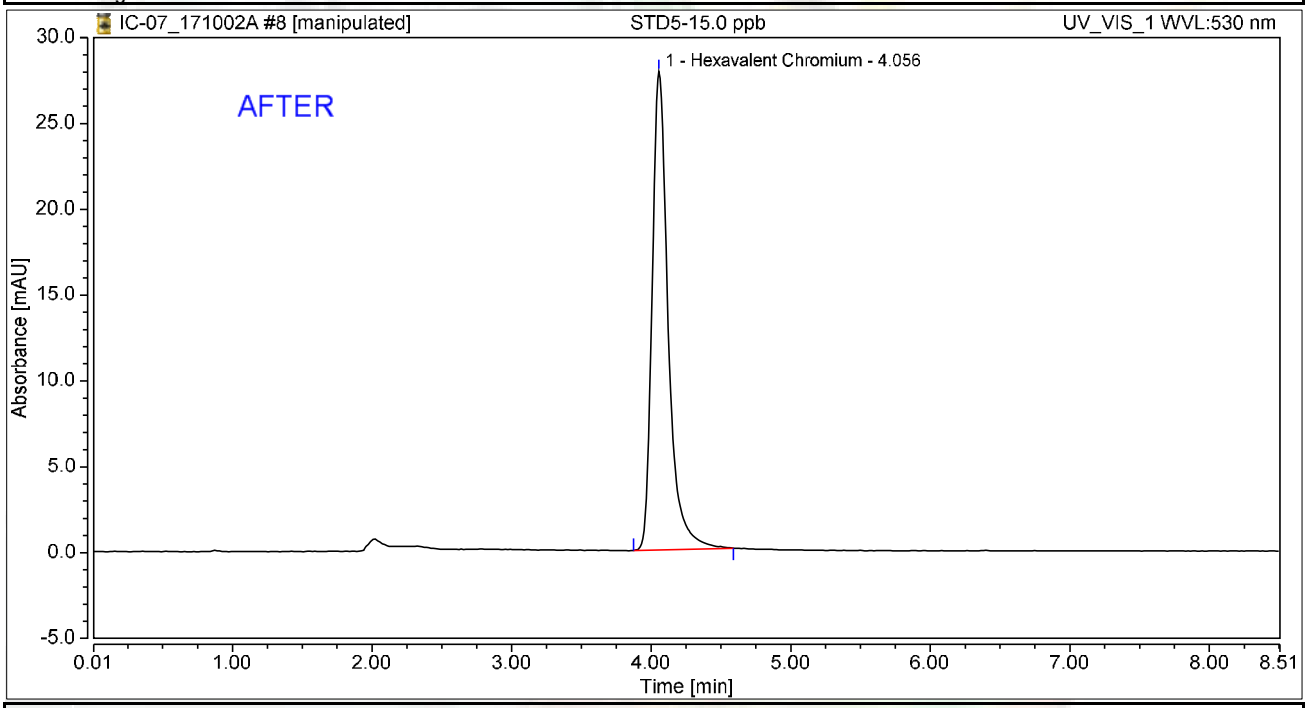
Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.718	27.856	100.00	100.00	15.0414
Total:			**3.718**	**27.856**	**100.00**	**100.00**	

rba 10/7/2017

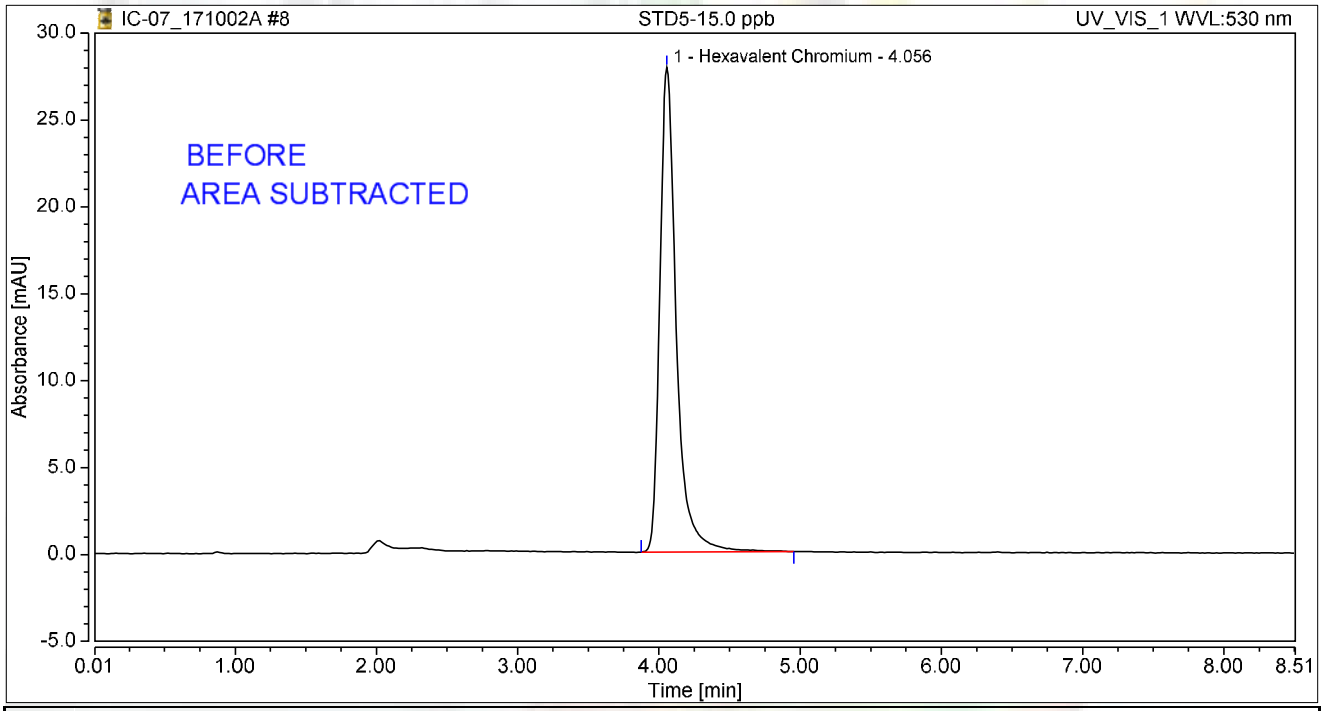
Reviewed by: 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.775	27.882	100.00	100.00	15.0084
Total:			**3.775**	**27.882**	**100.00**	**100.00**	

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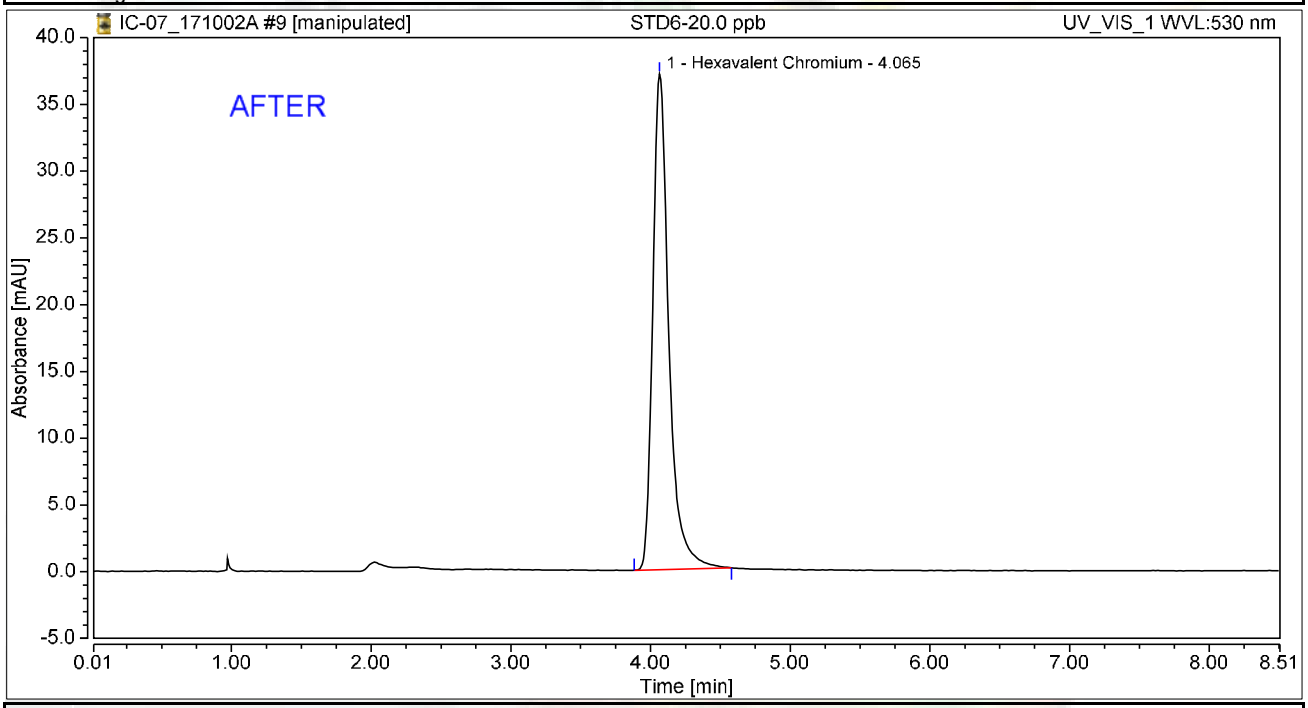
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	4.942	37.101	100.00	100.00	19.9913
Total:			**4.942**	**37.101**	**100.00**	**100.00**	

rba 10/7/2017

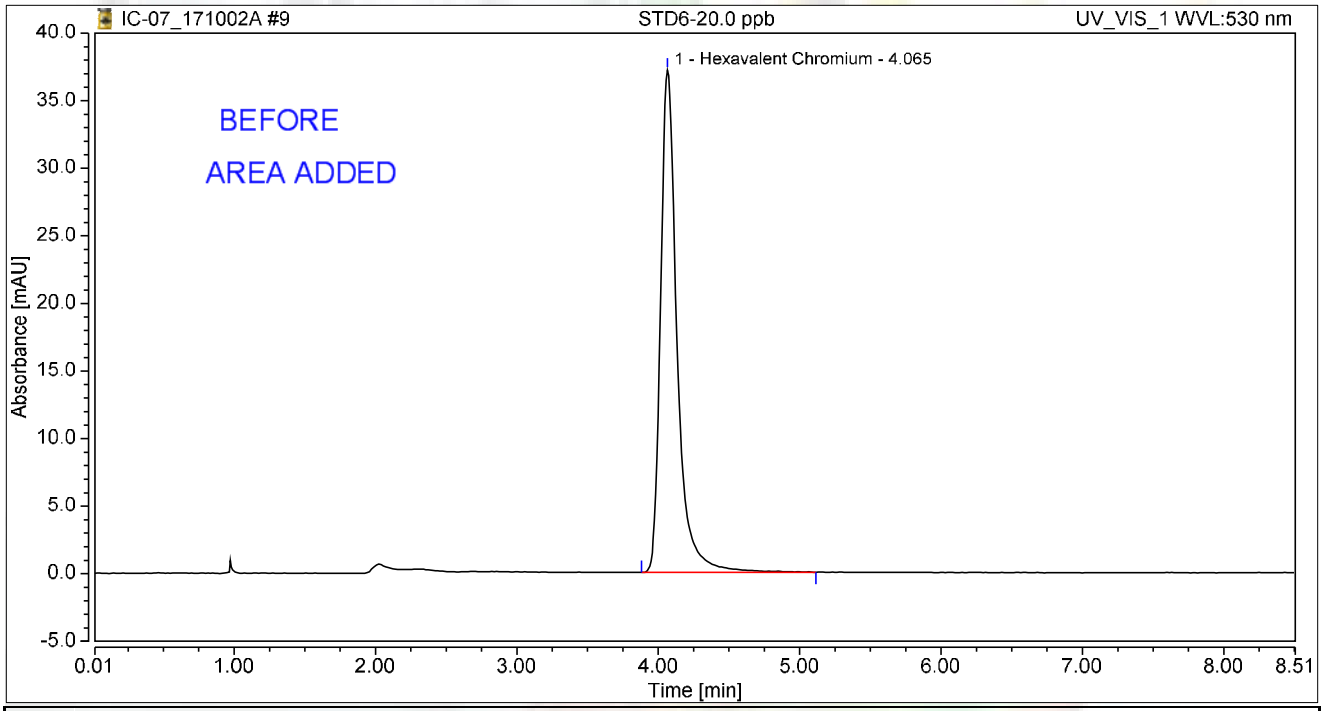
Reviewed by: 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	5.043	37.149	100.00	100.00	20.0500
Total:			**5.043**	**37.149**	**100.00**	**100.00**	

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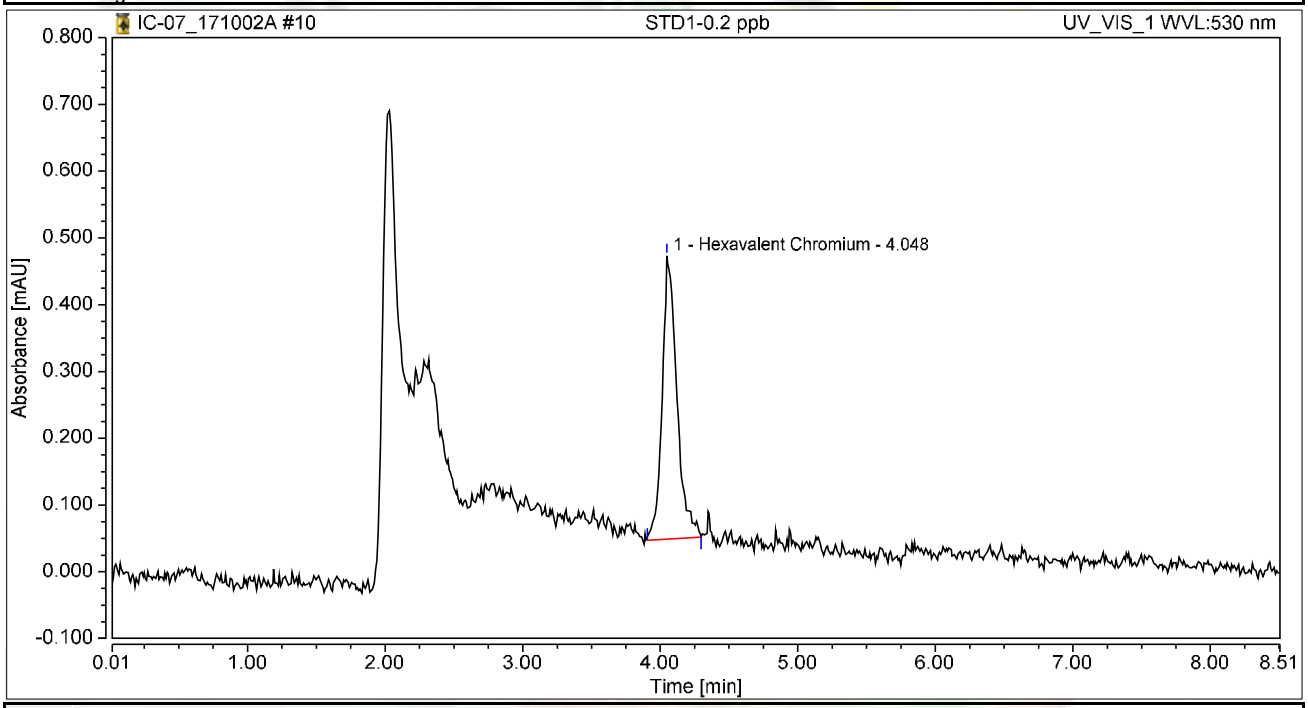
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



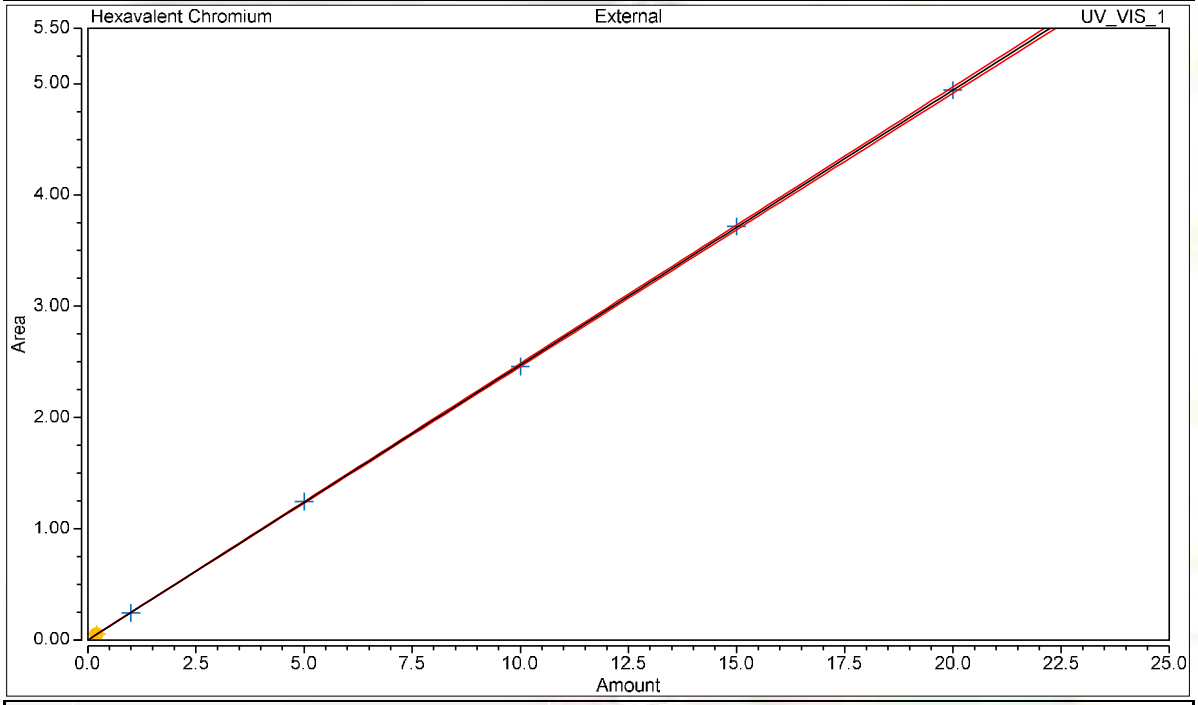
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.052	0.424	100.00	100.00	0.2120
Total:			**0.052**	**0.424**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2472
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

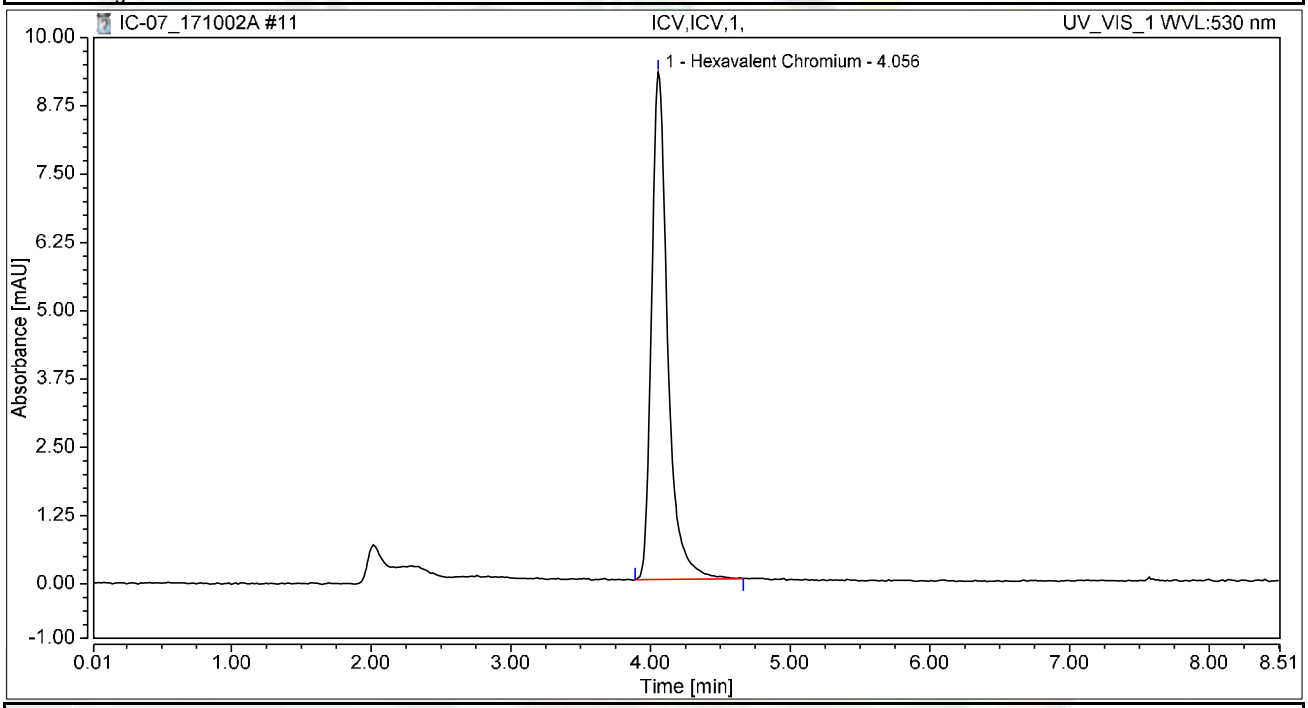
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
5	STD2-1.0 ppb	02	1.0000	0.2415	0.242	1.809
6	STD3-5.0 ppb	03	5.0000	1.2450	1.245	9.303
7	STD4-10.0 ppb	04	10.0000	2.4569	2.457	18.420
8	STD5-15.0 ppb	05	15.0000	3.7182	3.718	27.856
9	STD6-20.0 ppb	06	20.0000	4.9418	4.942	37.101
10	STD1-0.2 ppb	01	0.2000	0.0524	0.052	0.424

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

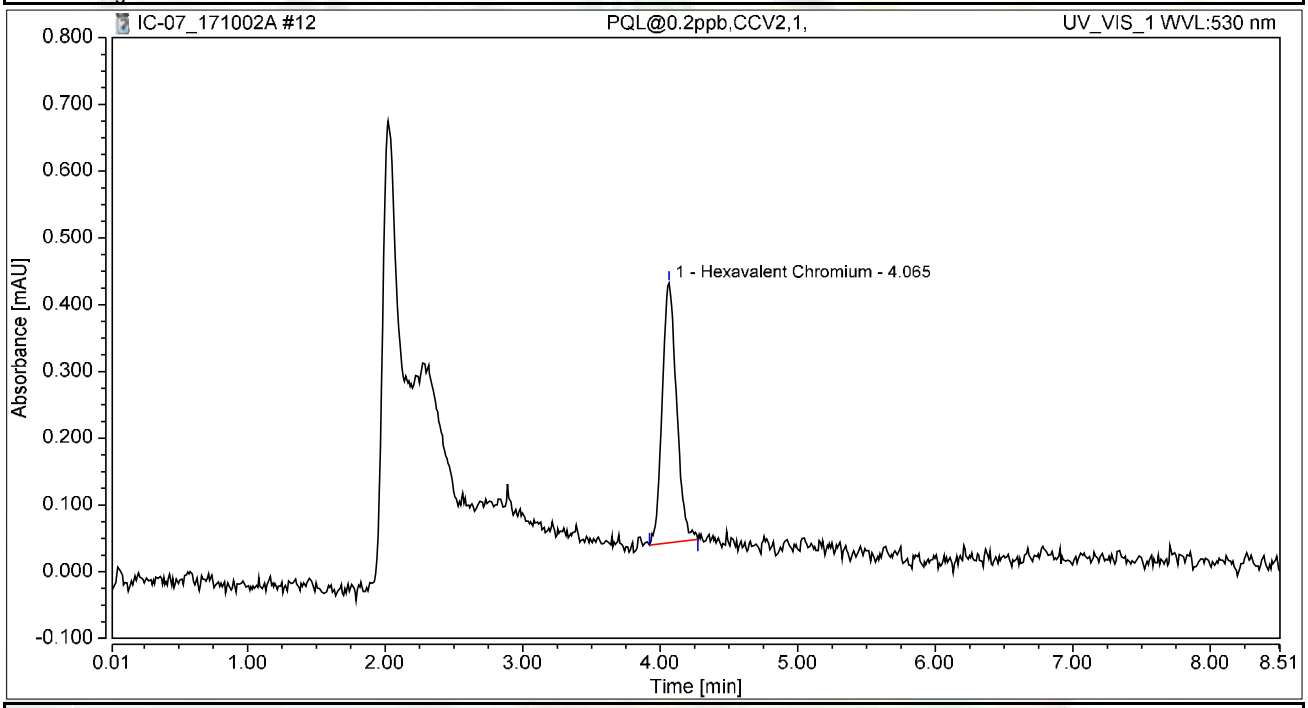
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.244	9.289	100.00	100.00	5.0342
Total:			**1.244**	**9.289**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

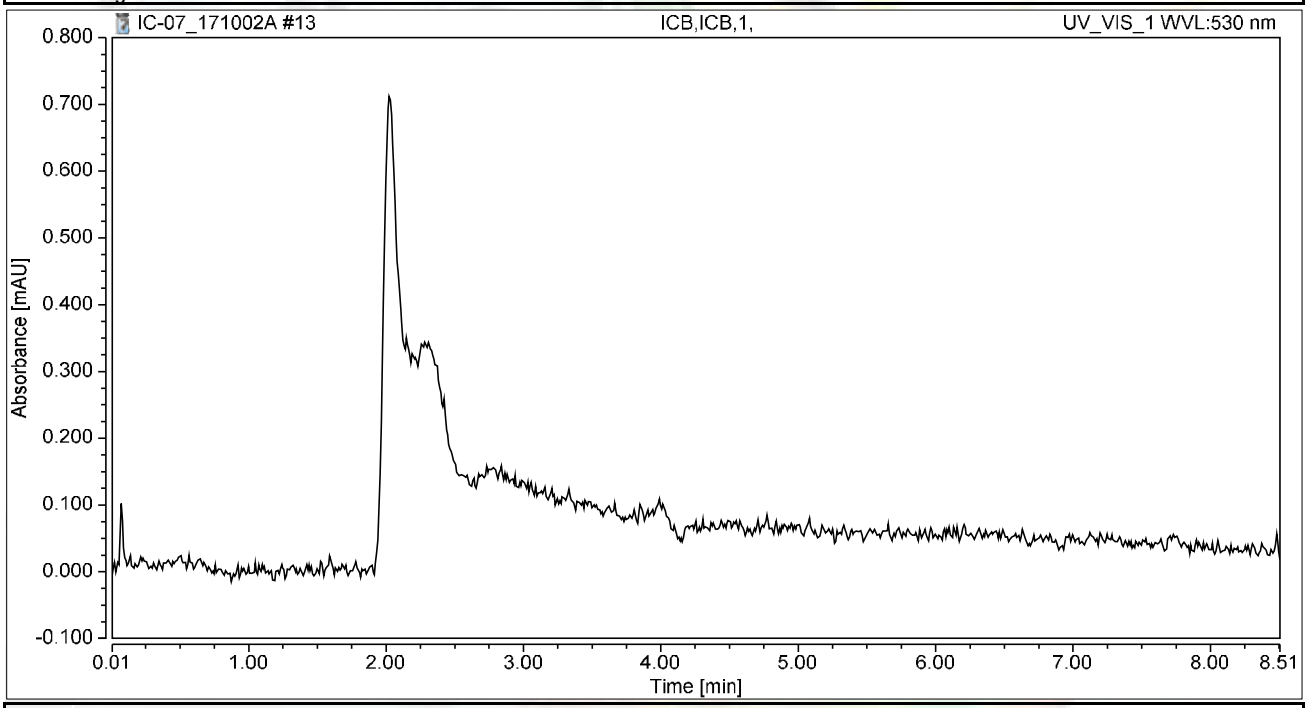
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.389	100.00	100.00	0.1915
Total:			**0.047**	**0.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

10/05/2017

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

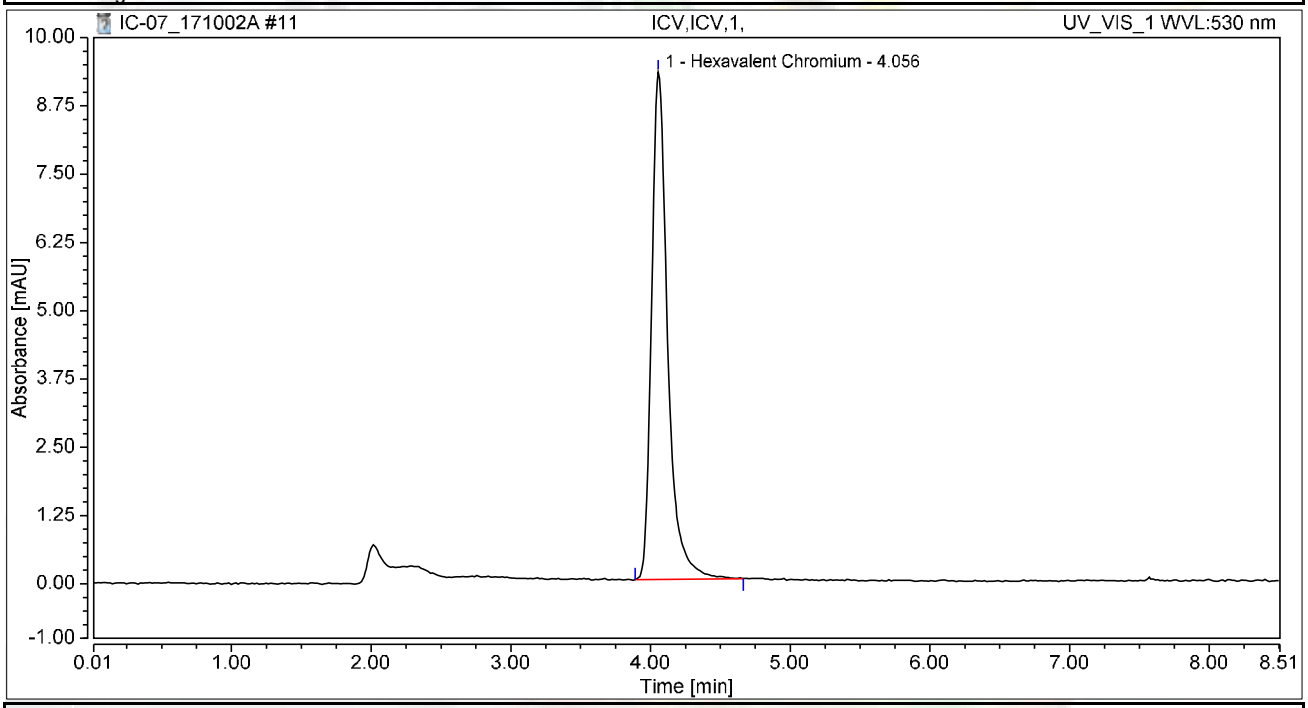
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

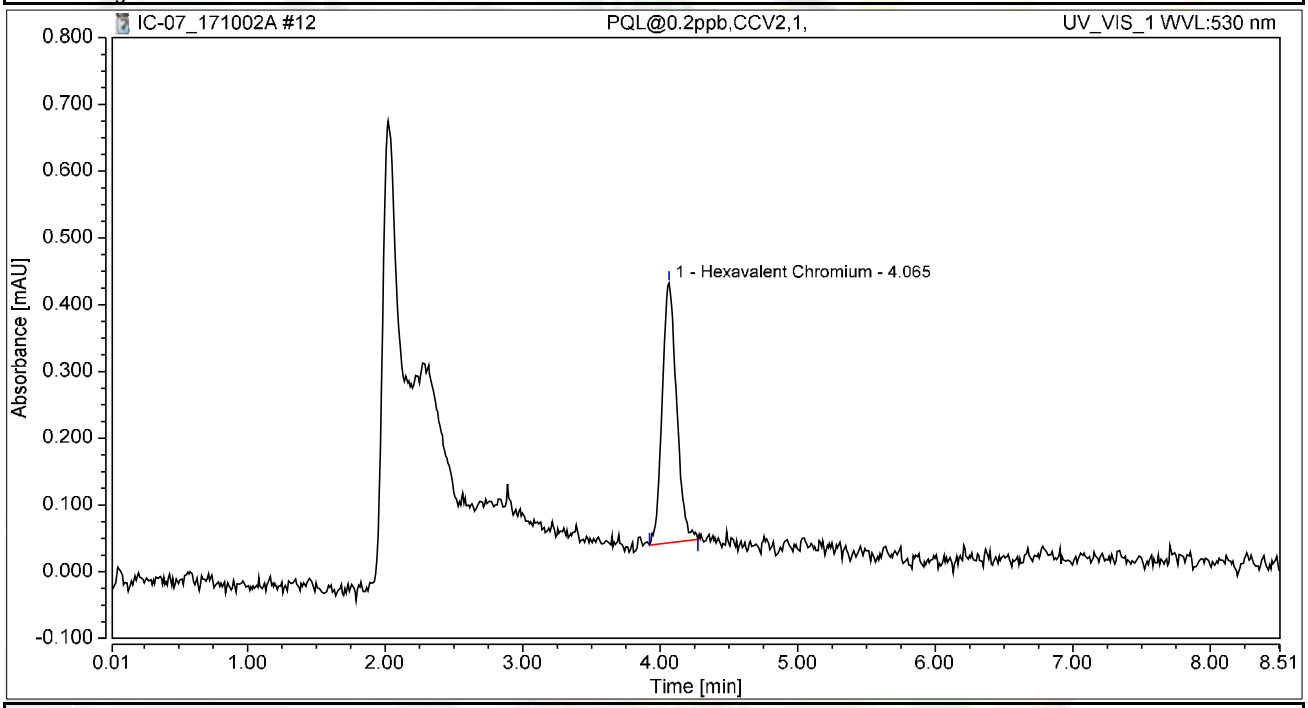
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.244	9.289	100.00	100.00	5.0342
Total:			**1.244**	**9.289**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

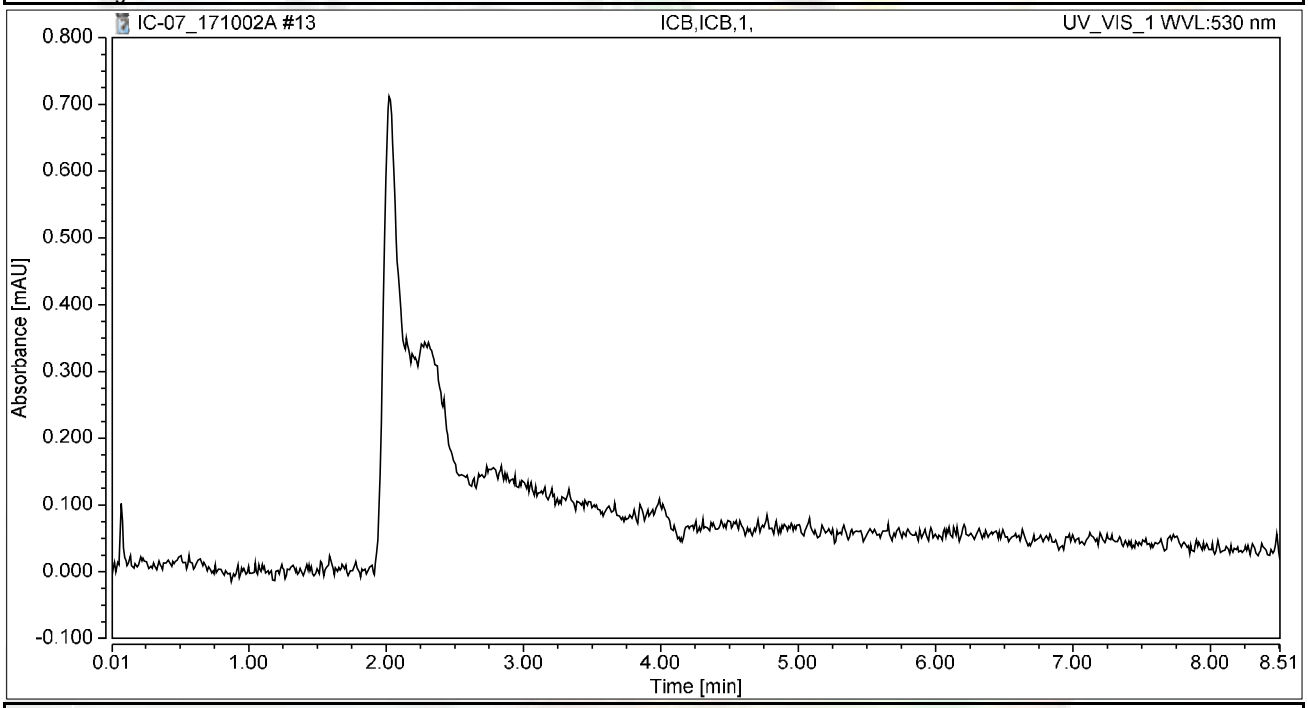
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.389	100.00	100.00	0.1915
Total:			**0.047**	**0.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

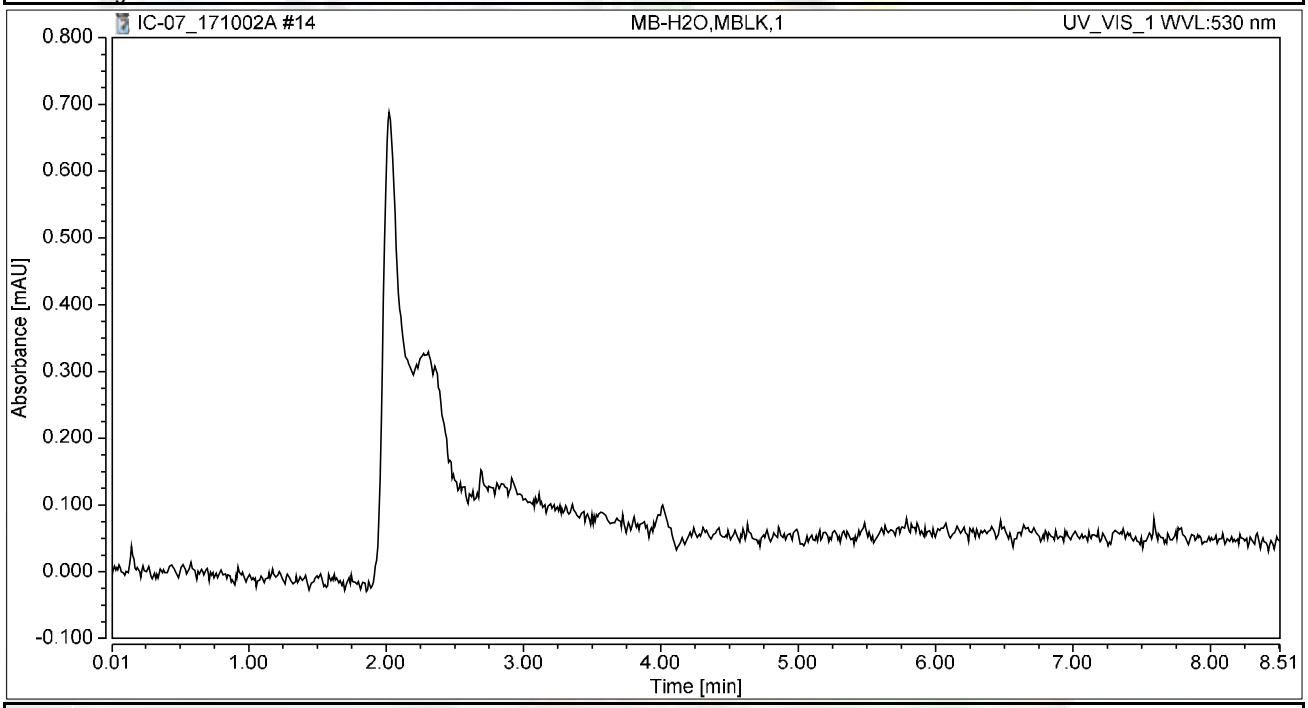
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

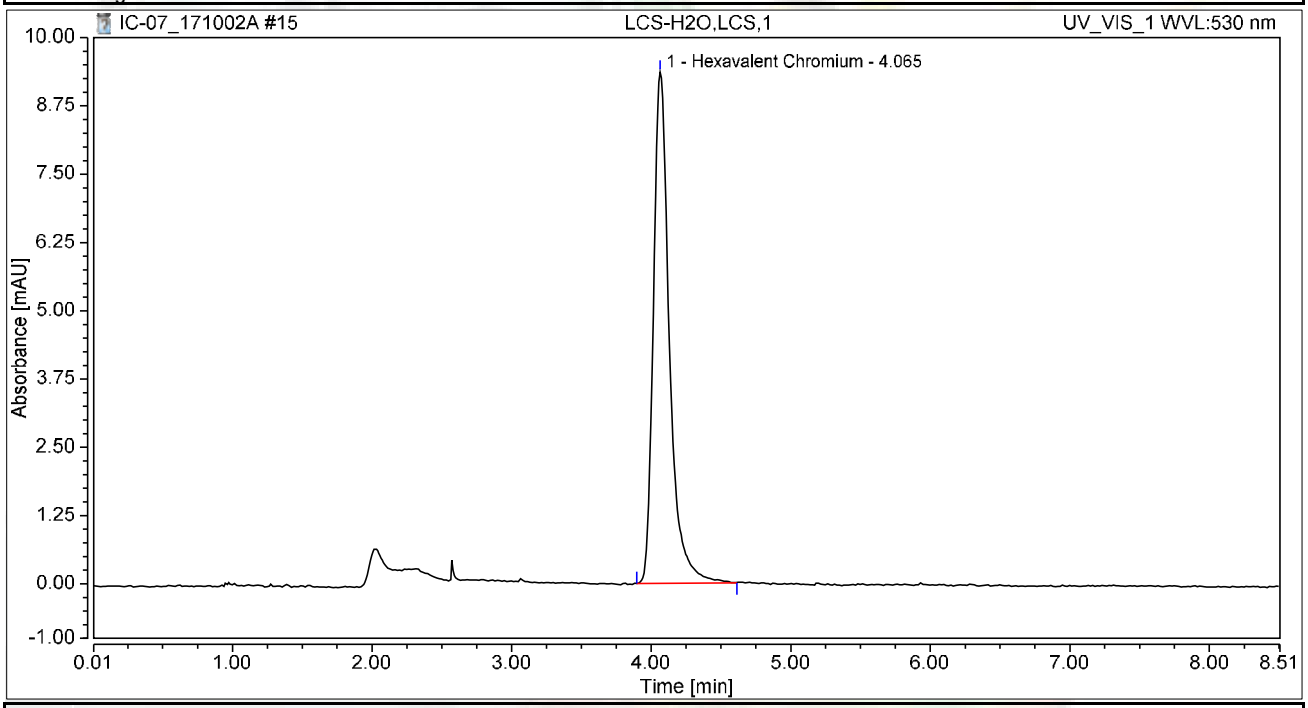
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

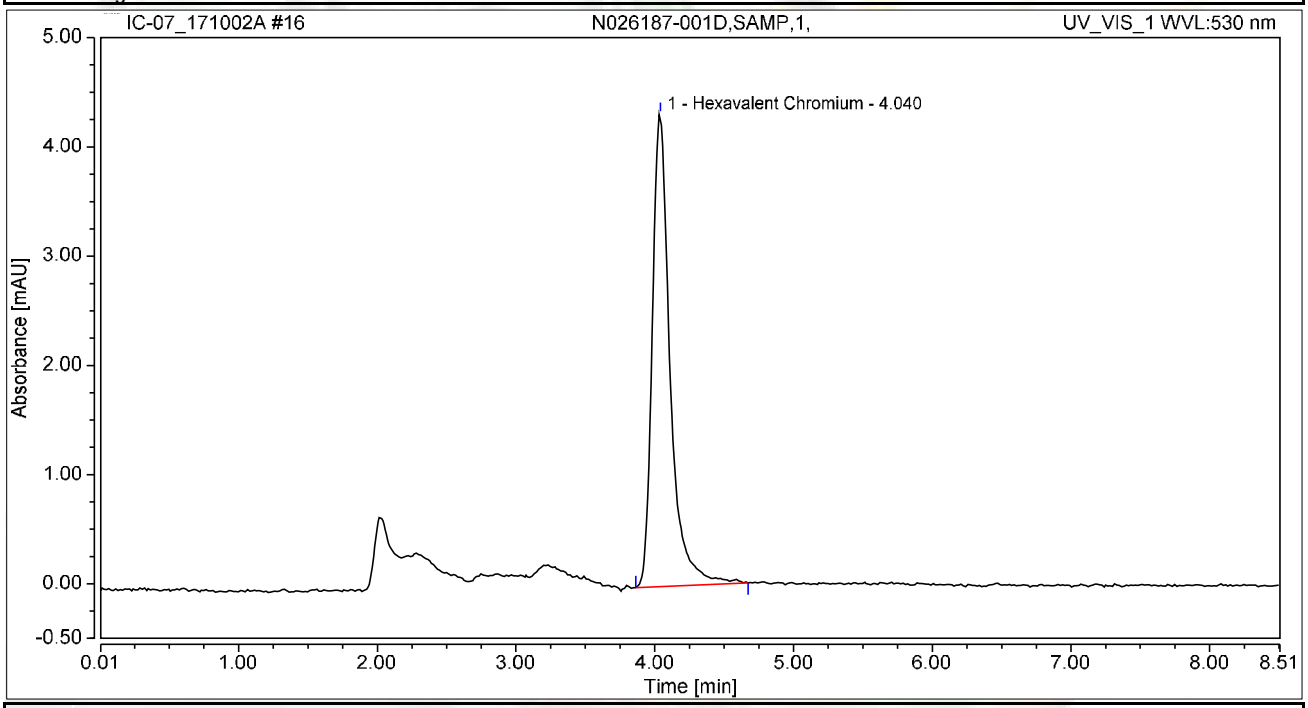
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.245	9.359	100.00	100.00	5.0375
Total:			**1.245**	**9.359**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026187-001D,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

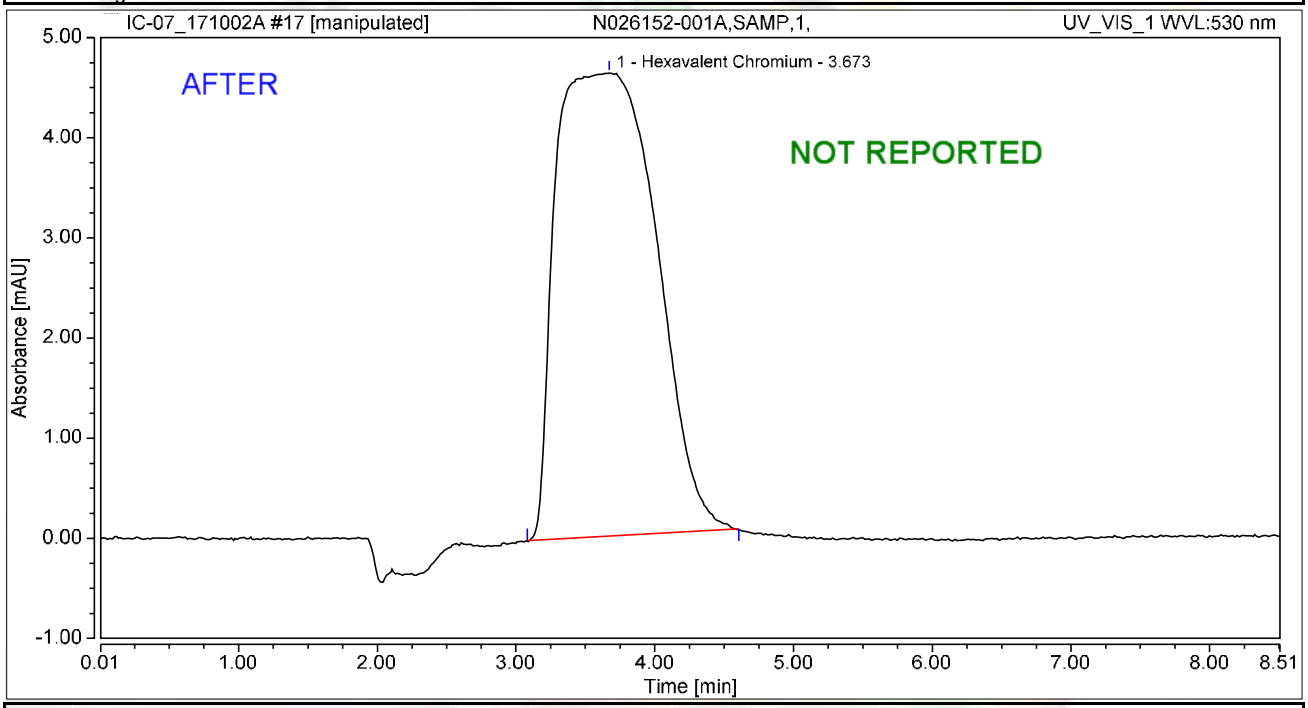
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.645	4.322	100.00	100.00	2.6105
Total:			**0.645**	**4.322**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026152-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.673	3.850	4.625	100.00	100.00	15.5730
Total:			**3.850**	**4.625**	**100.00**	**100.00**	

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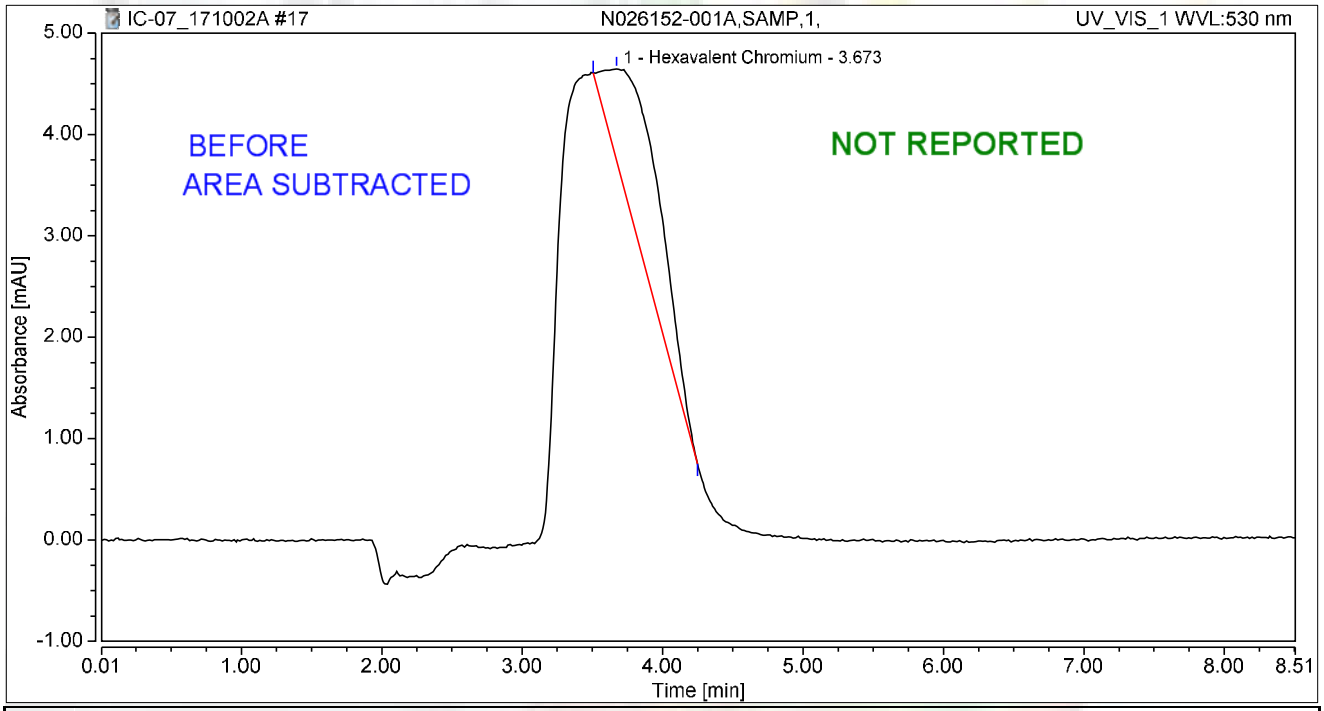
Chromatogram and Results

Injection Details

Injection Name:	**N026152-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

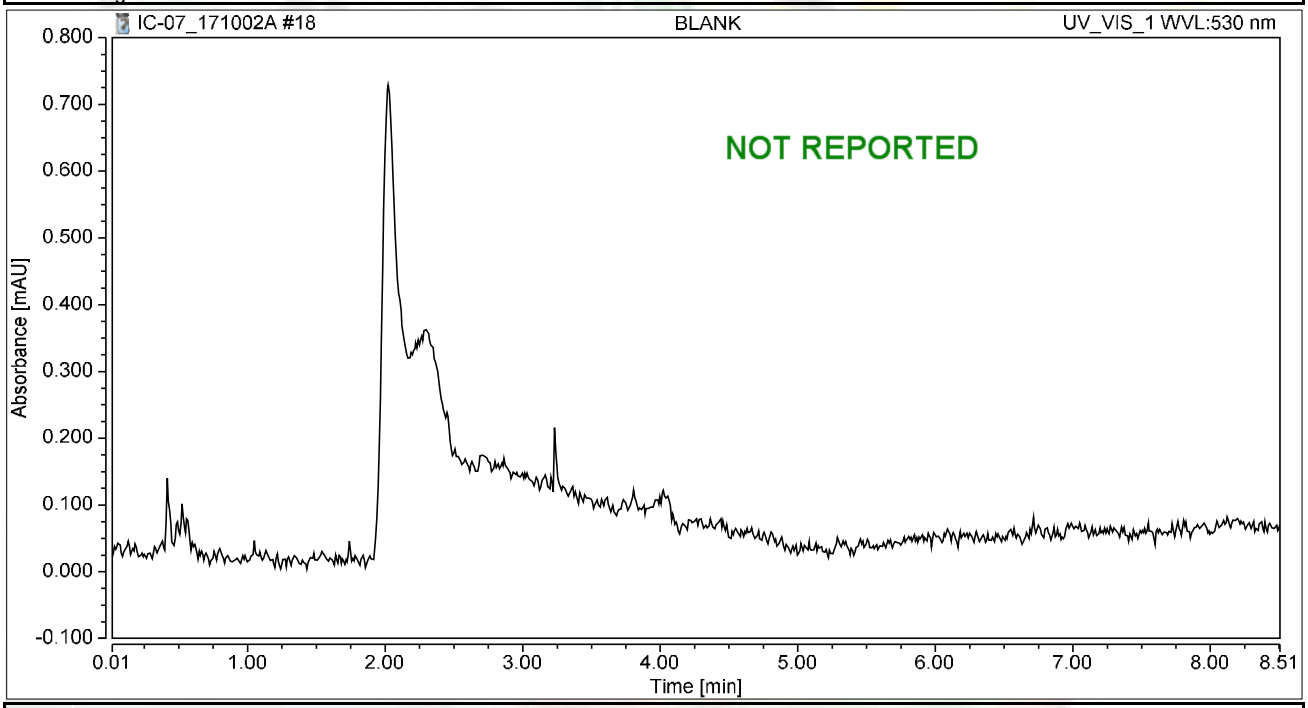
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.673	0.609	0.905	100.00	100.00	2.4215
Total:			**0.609**	**0.905**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

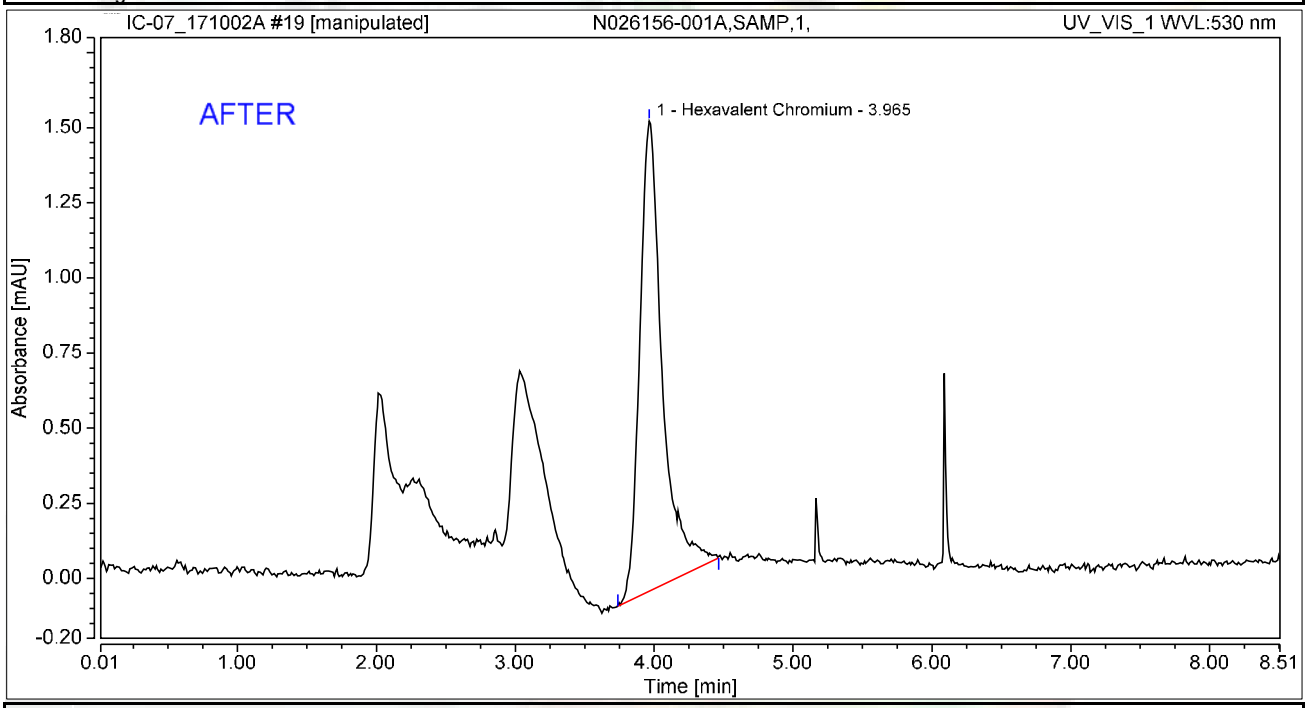
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.296	1.565	100.00	100.00	1.1982
Total:			**0.296**	**1.565**	**100.00**	**100.00**	

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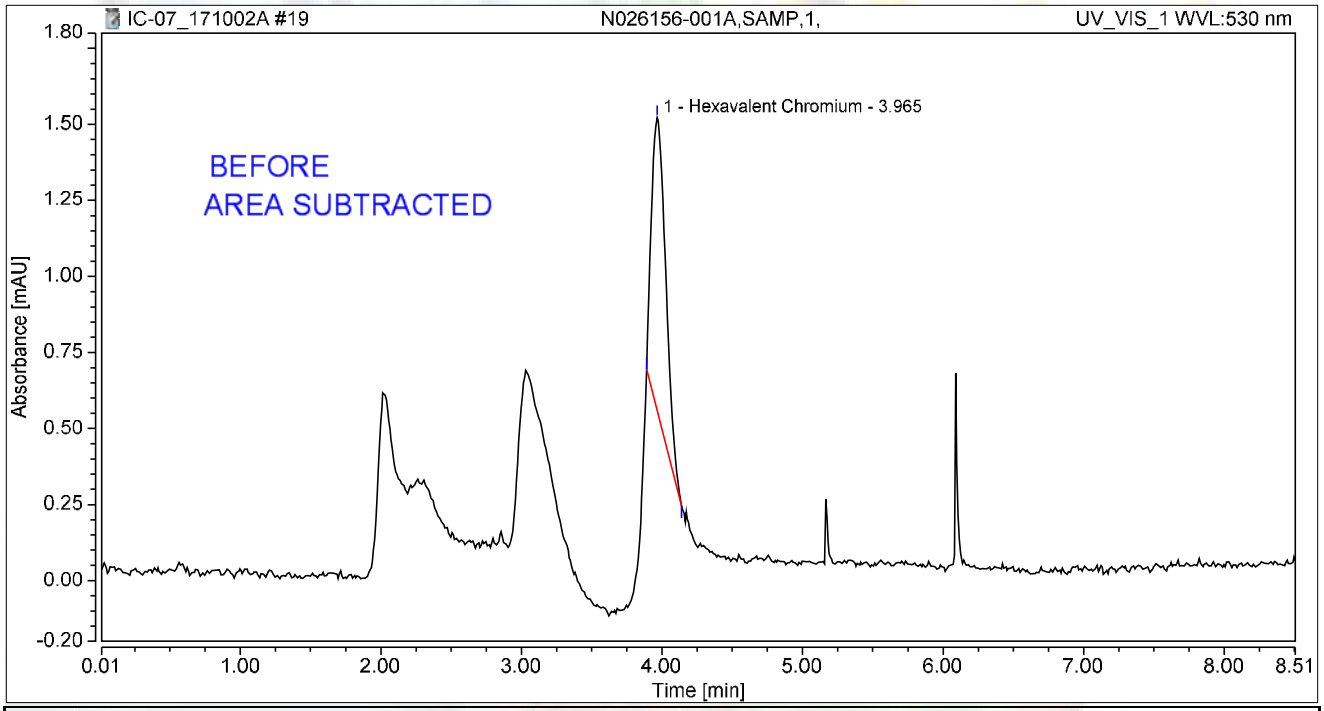
Chromatogram and Results

Injection Details

Injection Name:	**N026156-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 12:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

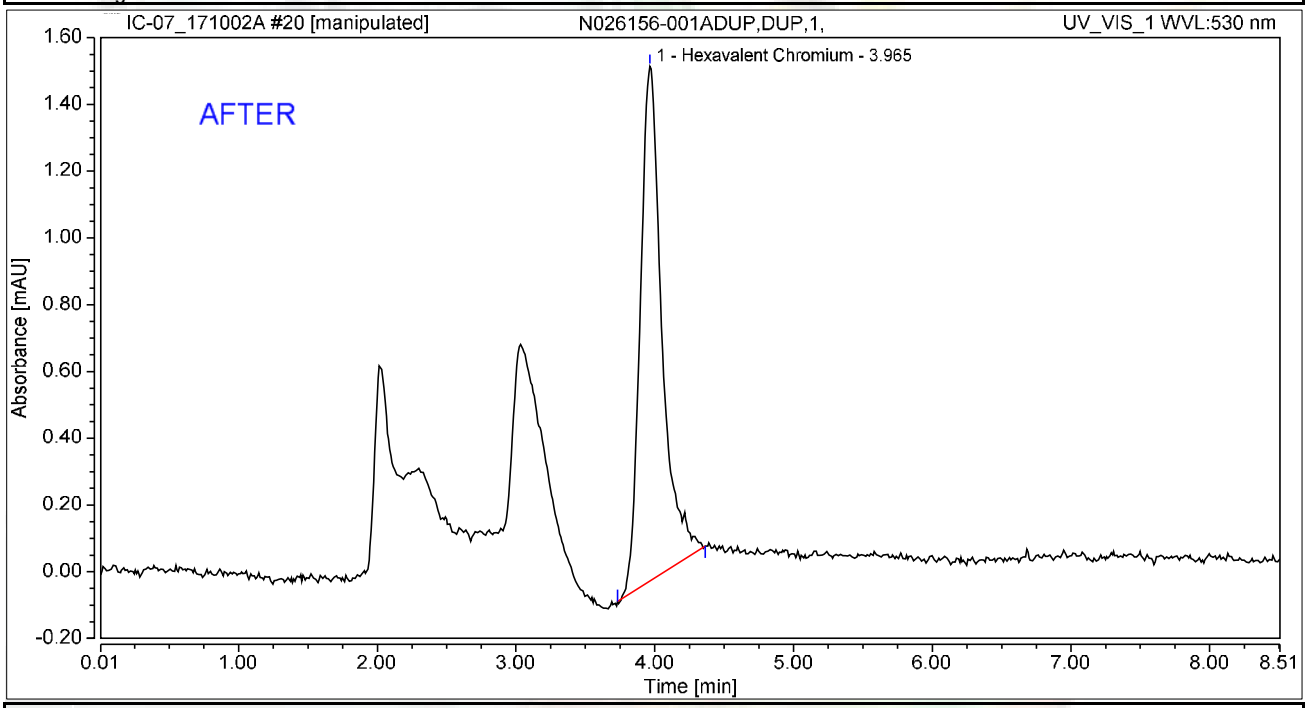
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.114	0.963	100.00	100.00	0.4528
Total:			**0.114**	**0.963**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.279	1.541	100.00	100.00	1.1300
Total:			**0.279**	**1.541**	**100.00**	**100.00**	

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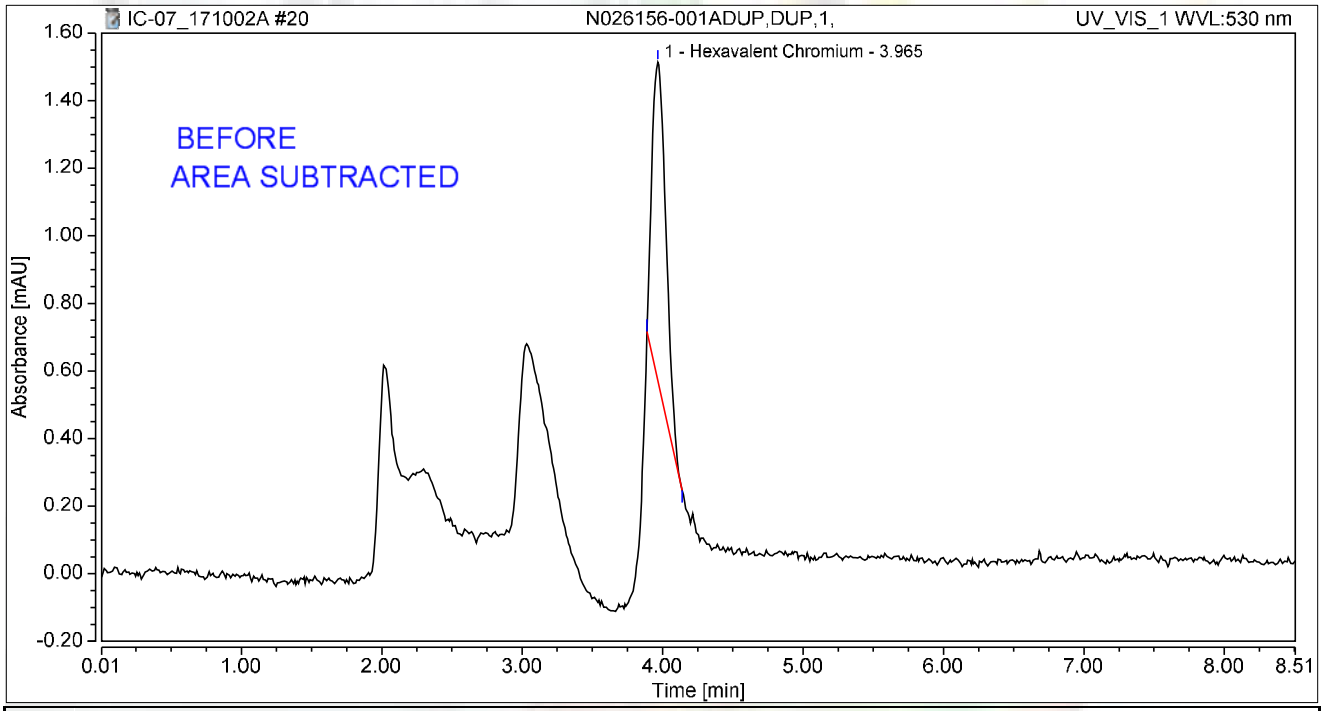
Chromatogram and Results

Injection Details

Injection Name:	**N026156-001ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

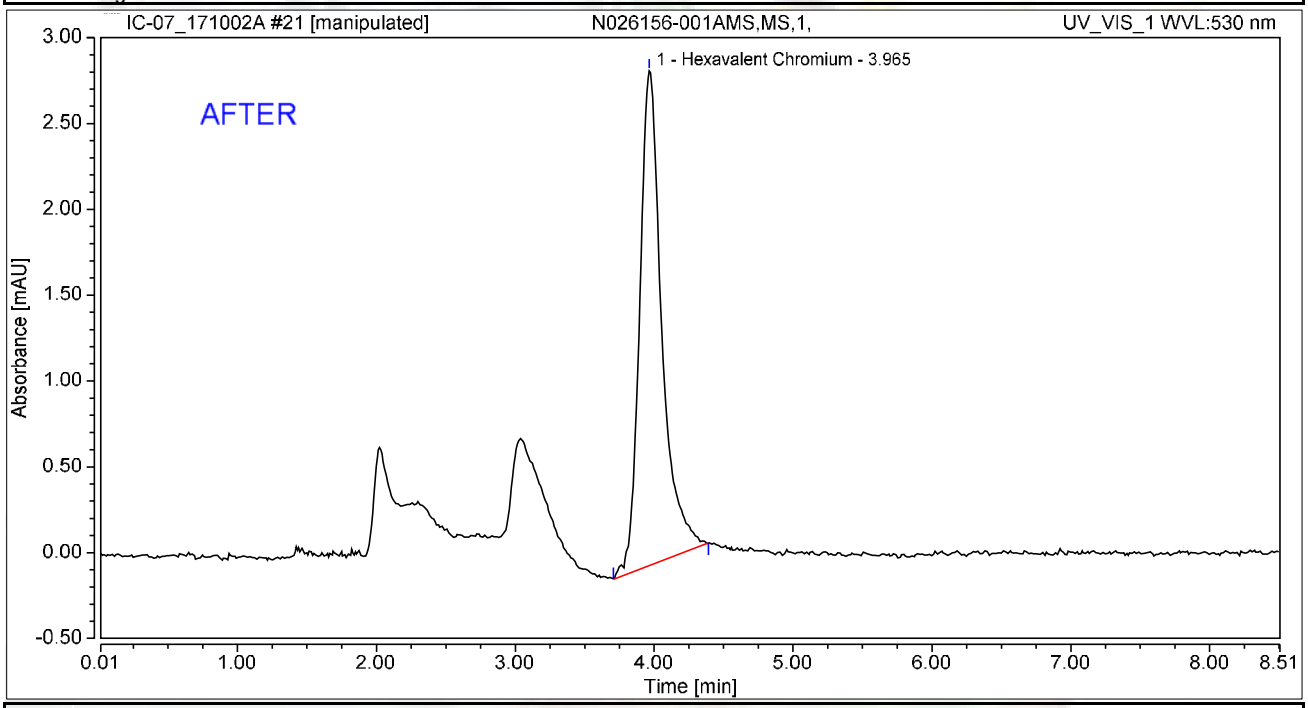
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.109	0.938	100.00	100.00	0.4321
Total:			**0.109**	**0.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.534	2.882	100.00	100.00	2.1595
Total:			**0.534**	**2.882**	**100.00**	**100.00**	

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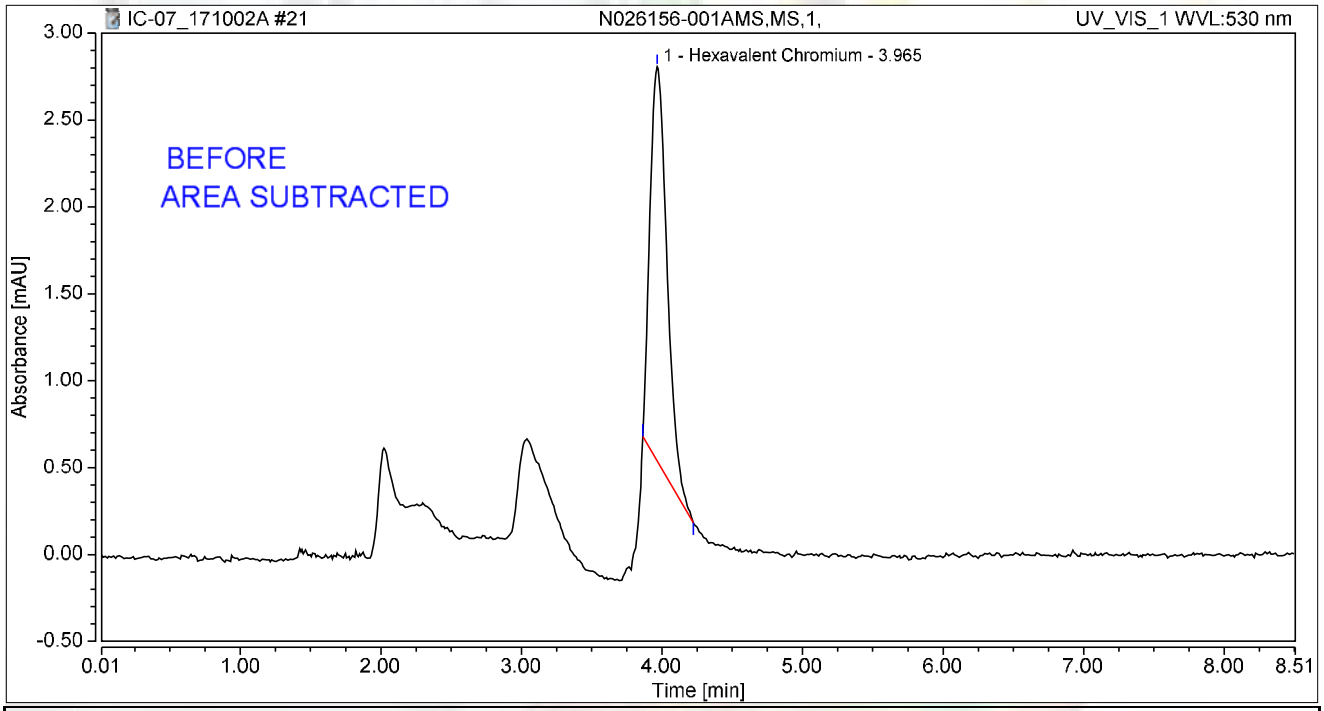
Chromatogram and Results

Injection Details

Injection Name:	**N026156-001AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

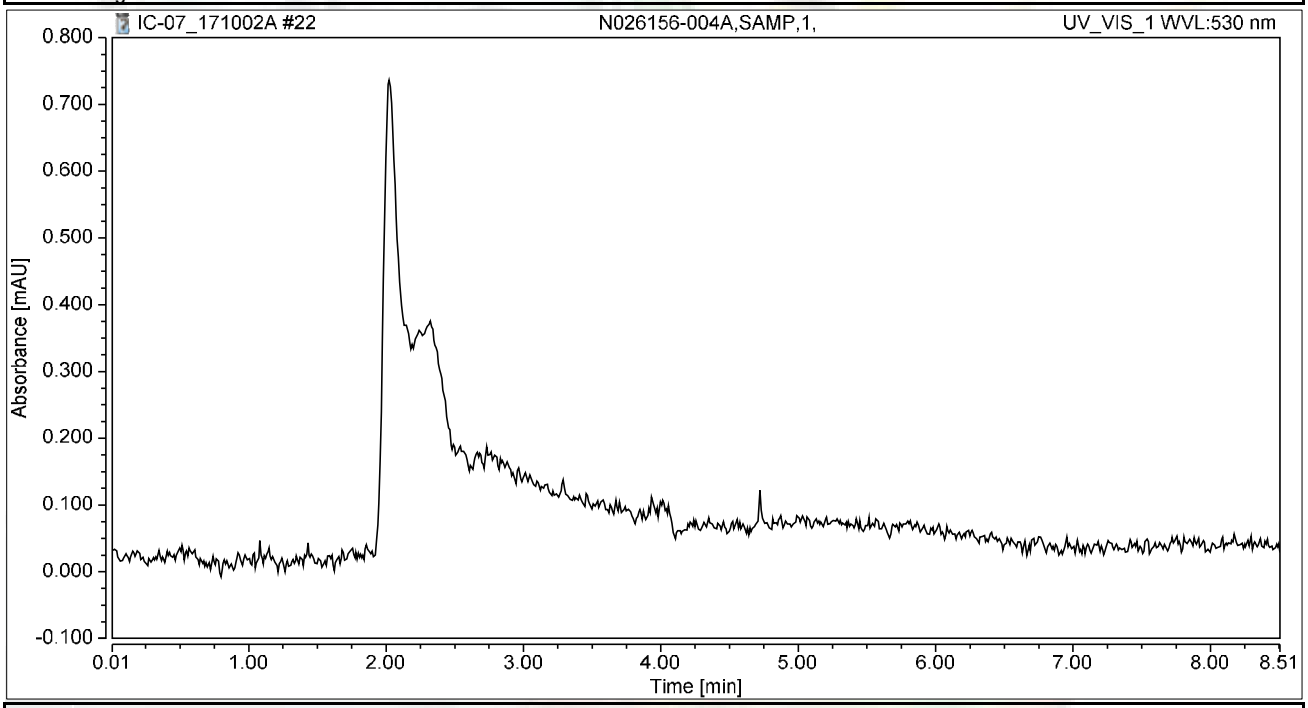
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.321	2.265	100.00	100.00	1.2752
Total:			**0.321**	**2.265**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

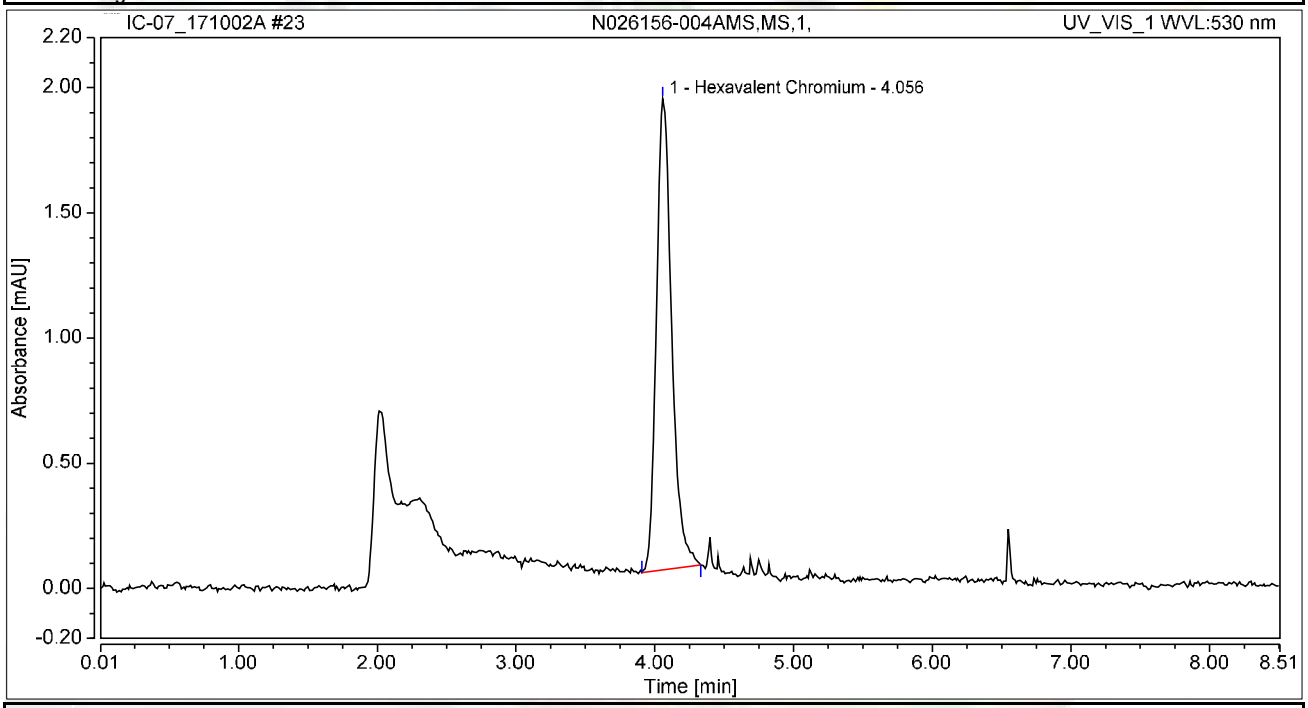
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

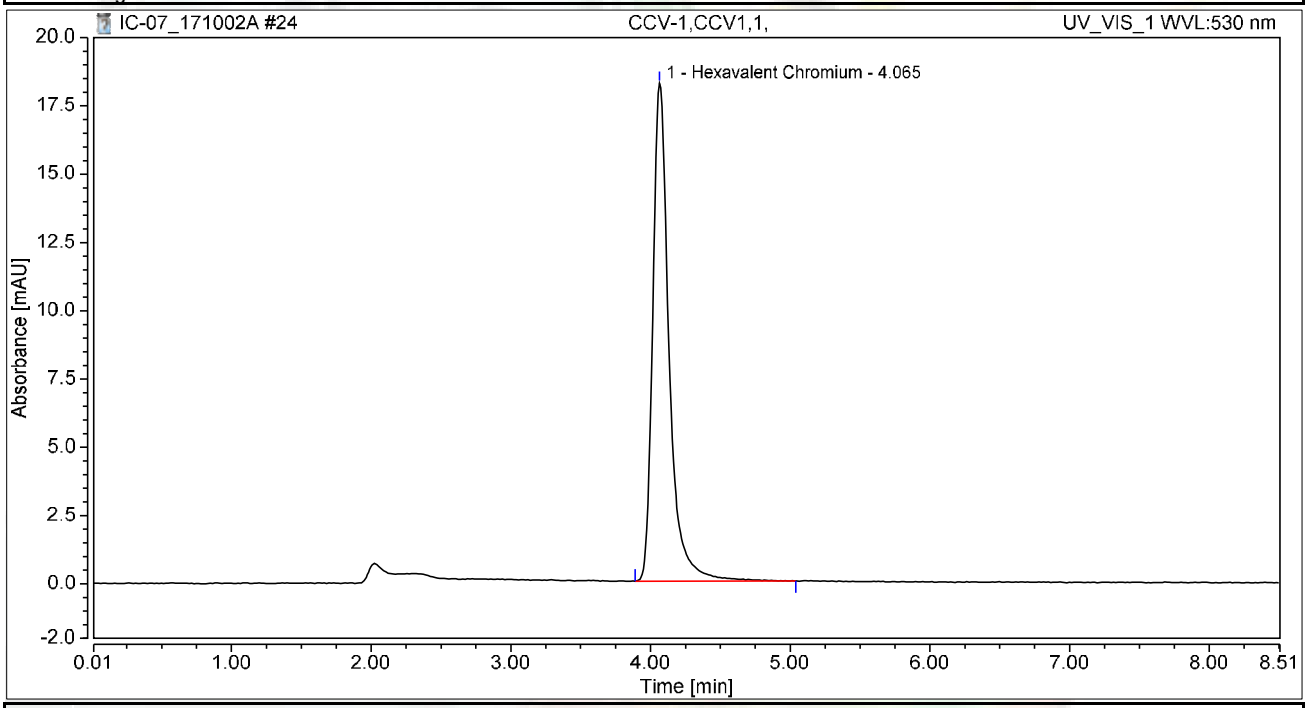
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.241	1.883	100.00	100.00	0.9746
Total:			**0.241**	**1.883**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

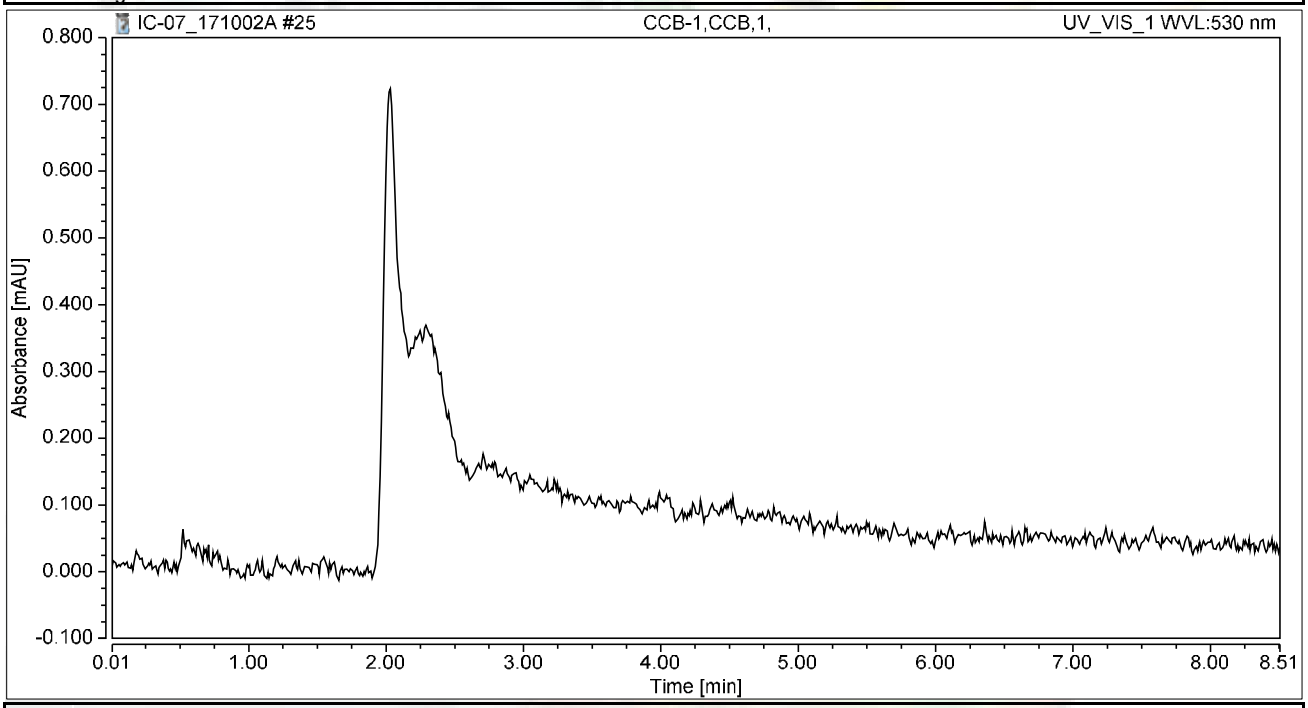
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.478	18.227	100.00	100.00	10.0244
Total:			**2.478**	**18.227**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 13:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

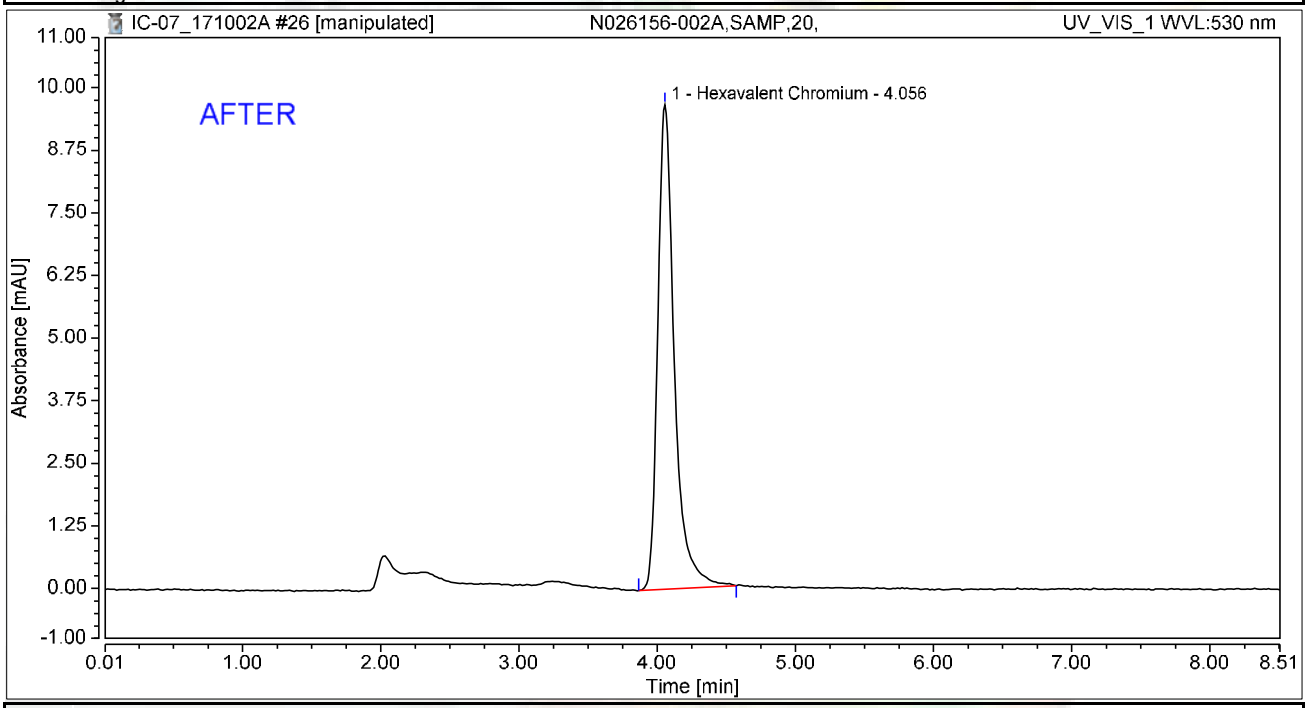
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-002A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.346	9.678	100.00	100.00	5.4442
Total:			**1.346**	**9.678**	**100.00**	**100.00**	

Reviewed by:

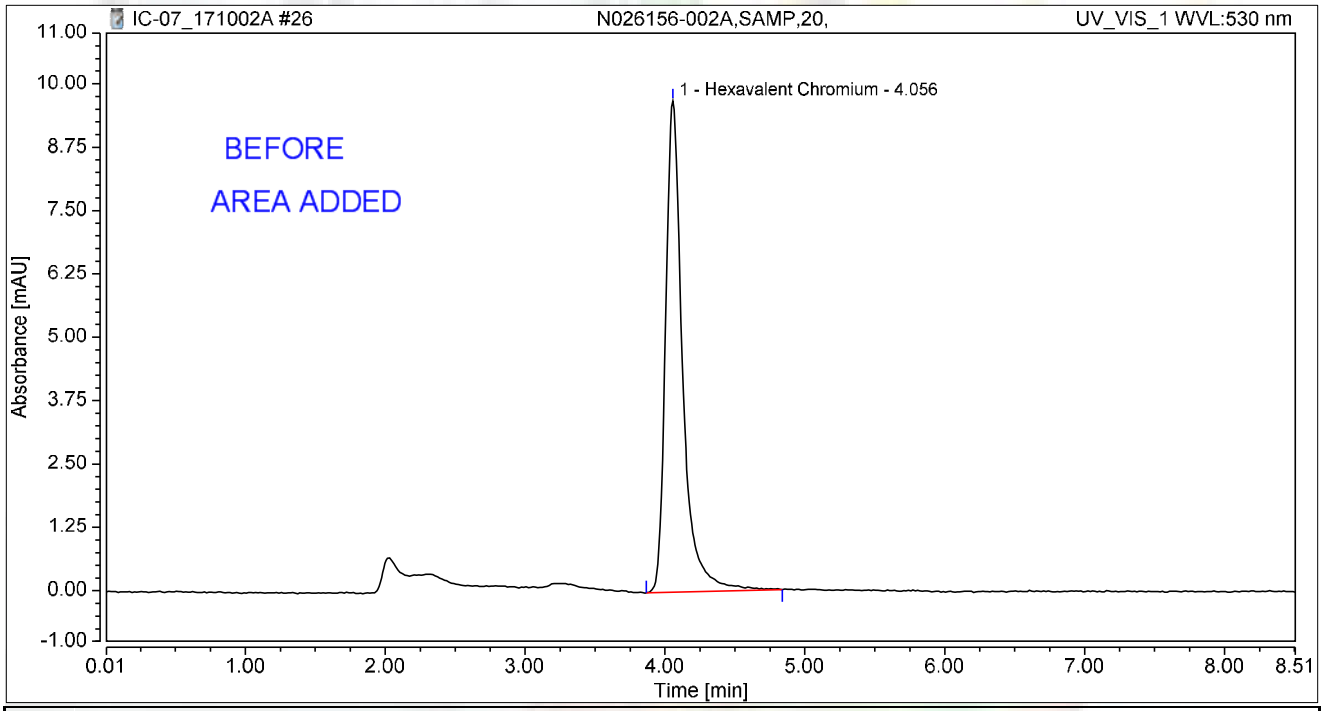
10/05/20/17

Chromatogram and Results

Injection Details

Injection Name:	**N026156-002A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

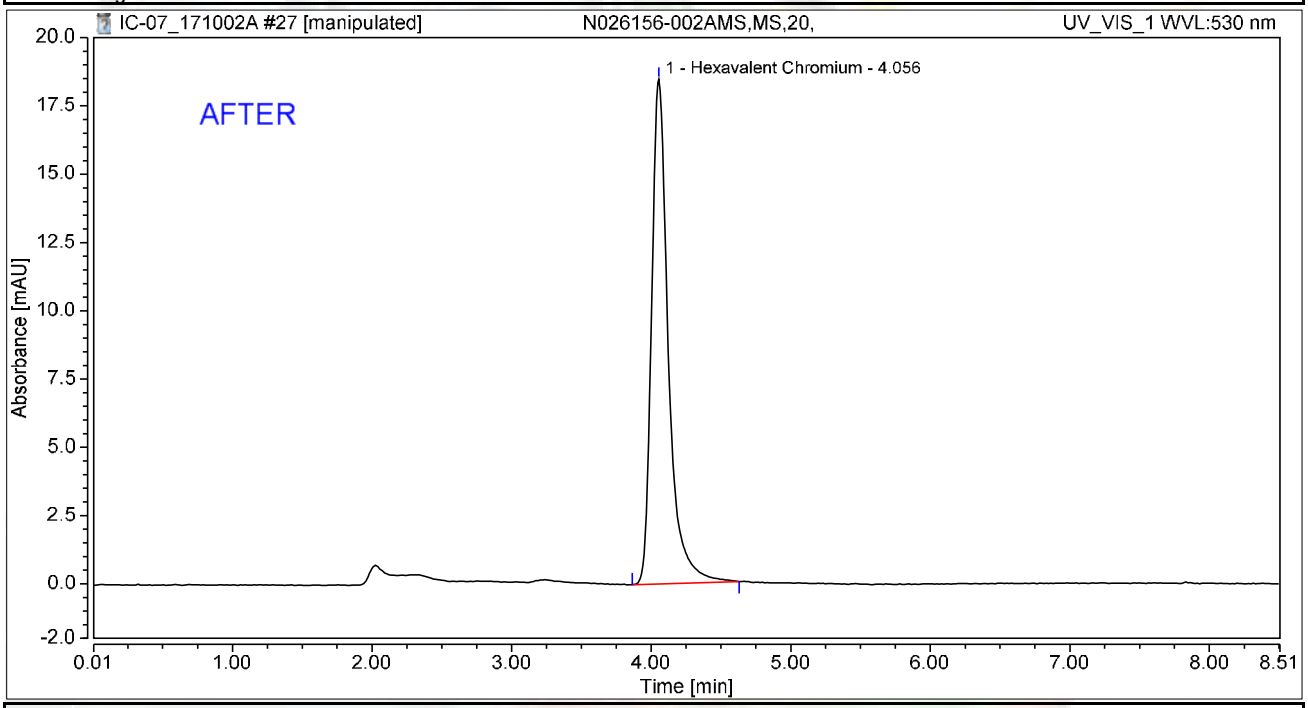
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.375	9.693	100.00	100.00	5.4654
Total:			**1.375**	**9.693**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-002AMS,MS,20,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.575	18.476	100.00	100.00	10.4153
Total:			**2.575**	**18.476**	**100.00**	**100.00**	

Reviewed by:

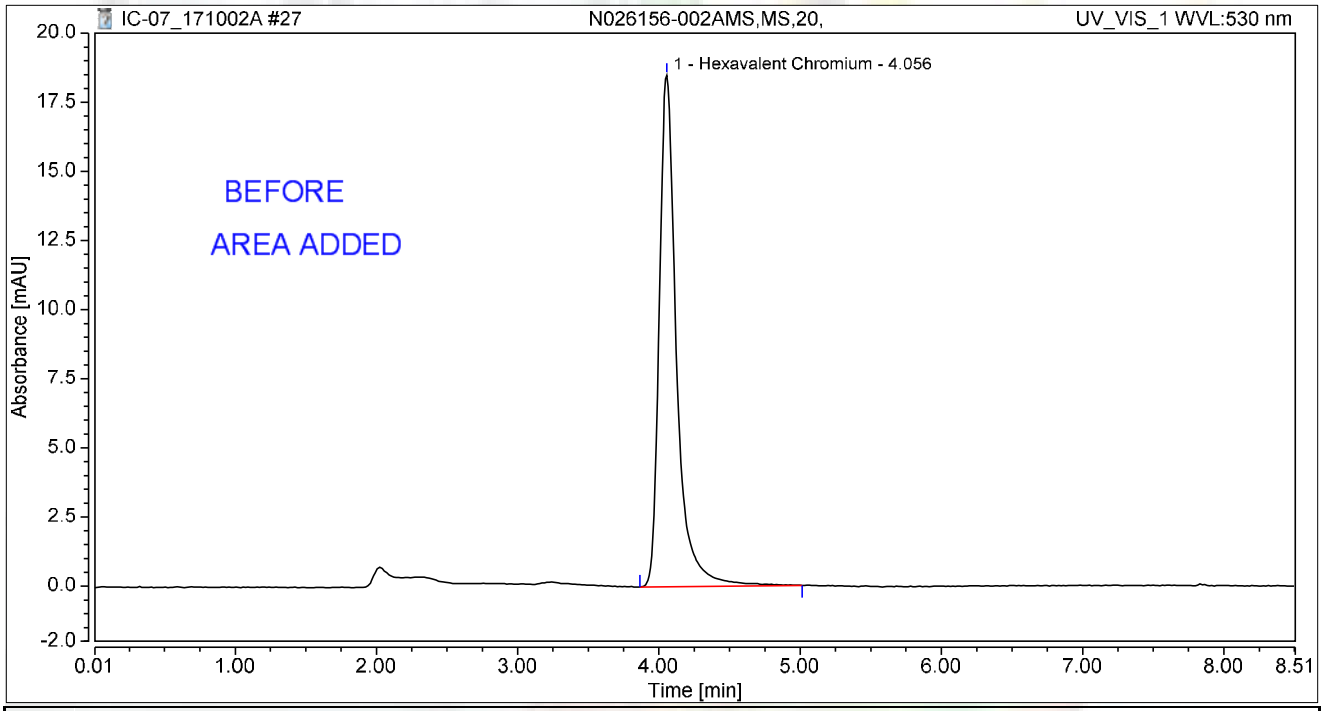
10/05/20/17

Chromatogram and Results

Injection Details

Injection Name:	**N026156-002AMS,MS,20,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

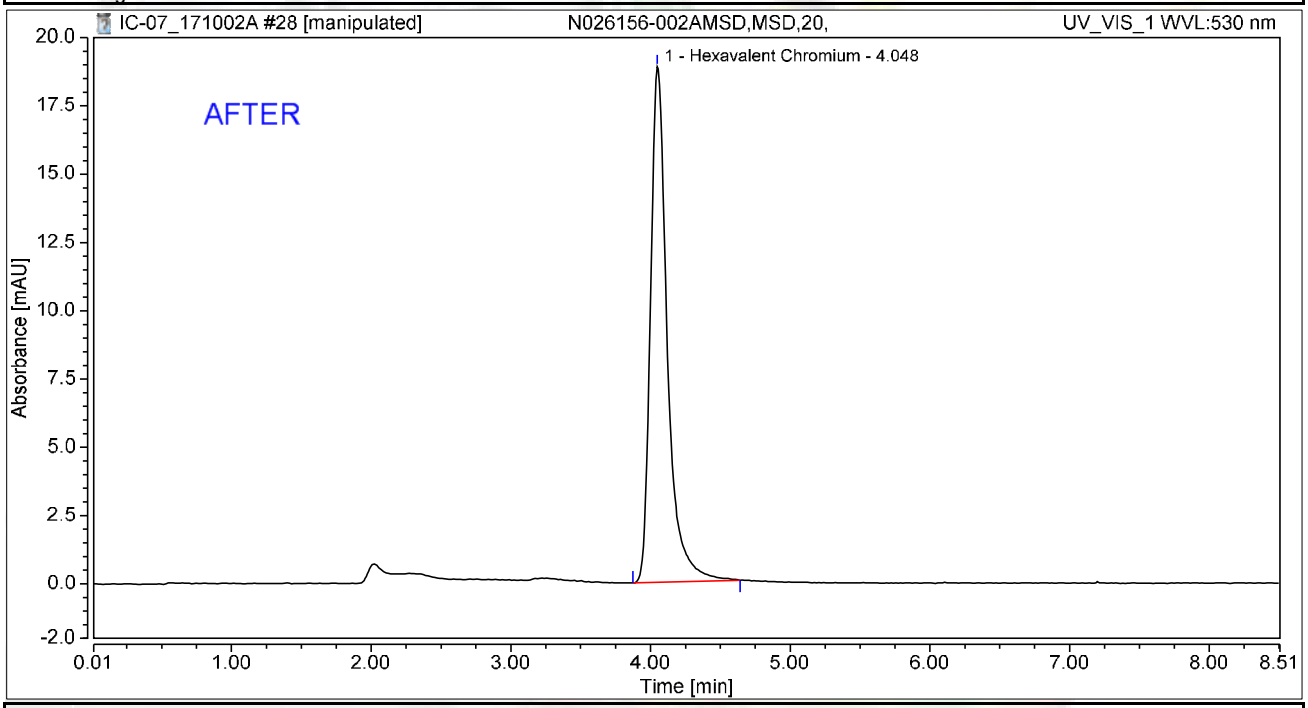
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.625	18.497	100.00	100.00	10.4351
Total:			**2.625**	**18.497**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-002AMSD,MSD,20,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.639	18.878	100.00	100.00	10.6768
Total:			**2.639**	**18.878**	**100.00**	**100.00**	

Reviewed by:

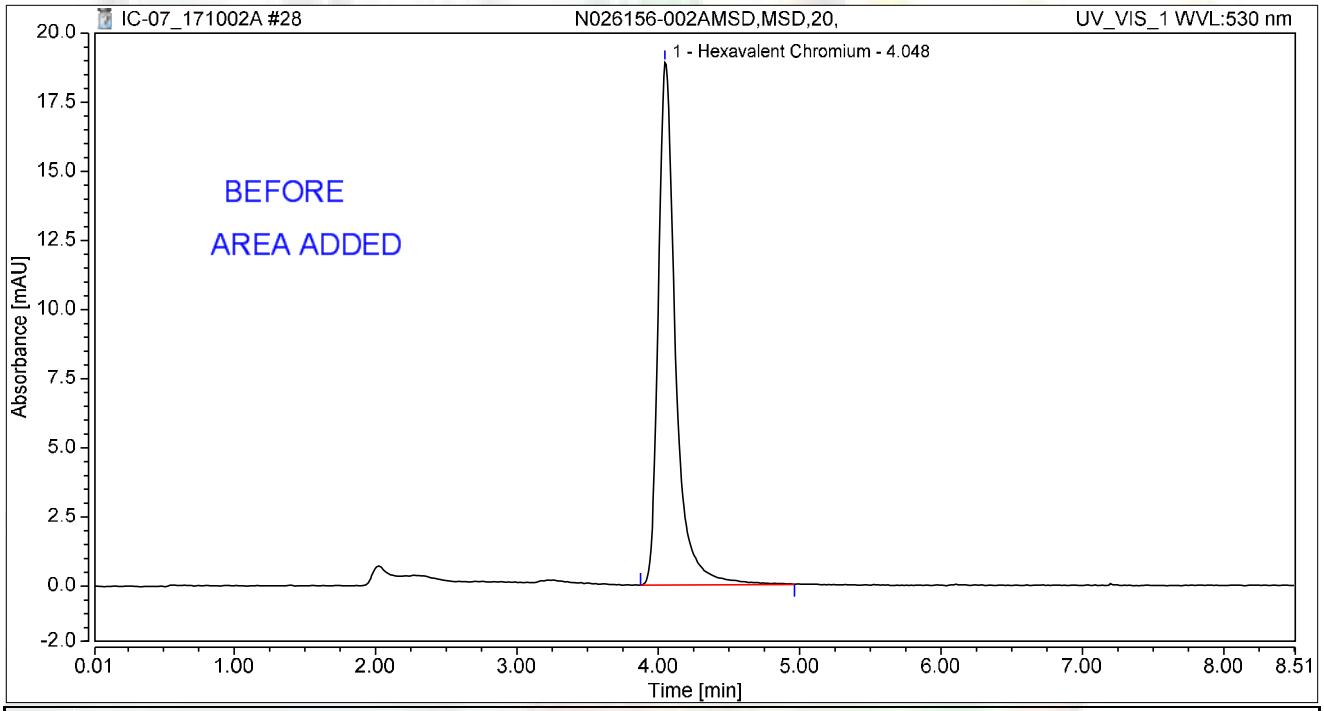
10/05/20/17

Chromatogram and Results

Injection Details

Injection Name:	**N026156-002AMSD,MSD,20,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

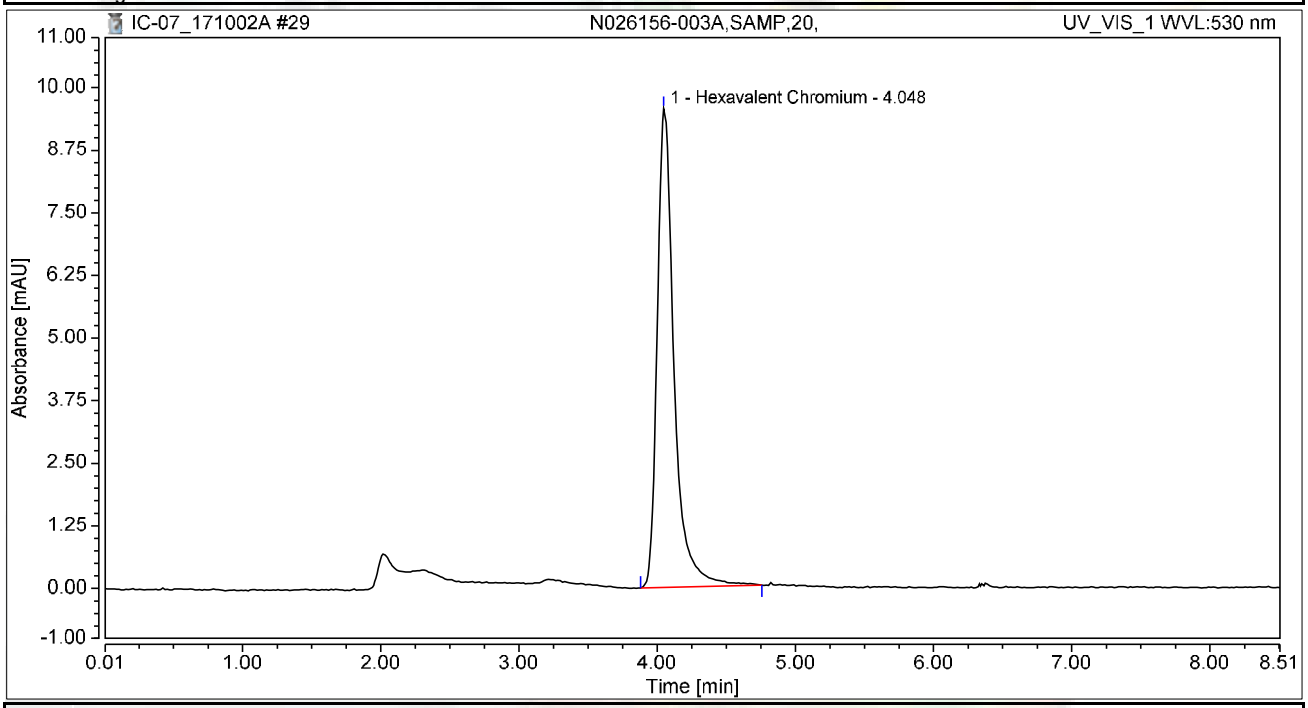
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.686	18.897	100.00	100.00	10.6798
Total:			**2.686**	**18.897**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-003A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

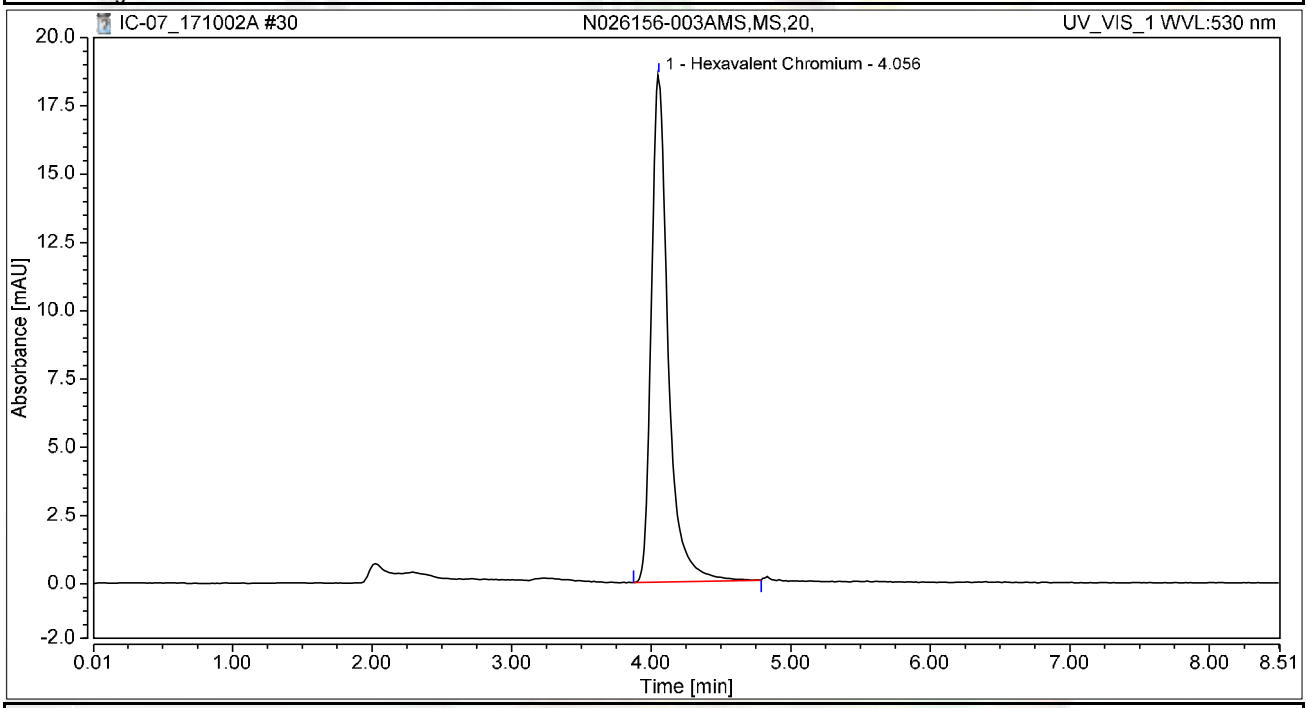
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.353	9.563	100.00	100.00	5.4750
Total:			**1.353**	**9.563**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-003AMS,MS,20,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

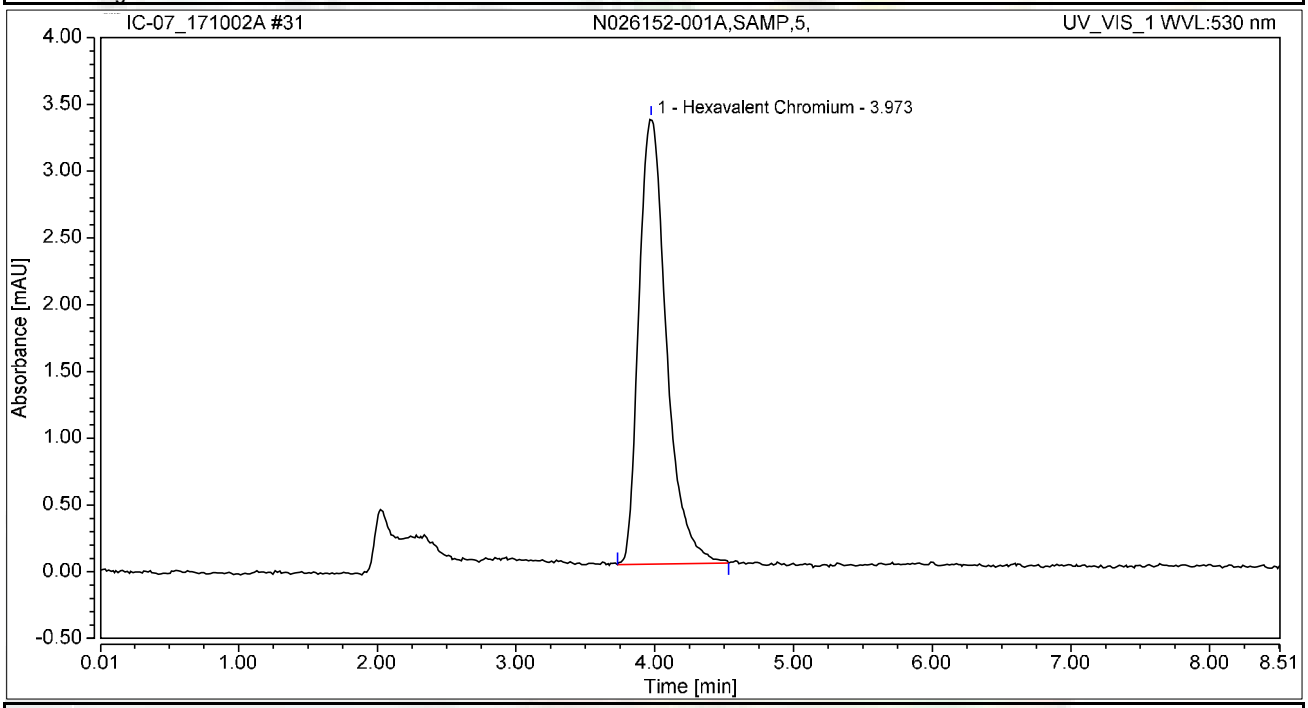
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.608	18.562	100.00	100.00	10.5515
Total:			**2.608**	**18.562**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026152-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 14:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

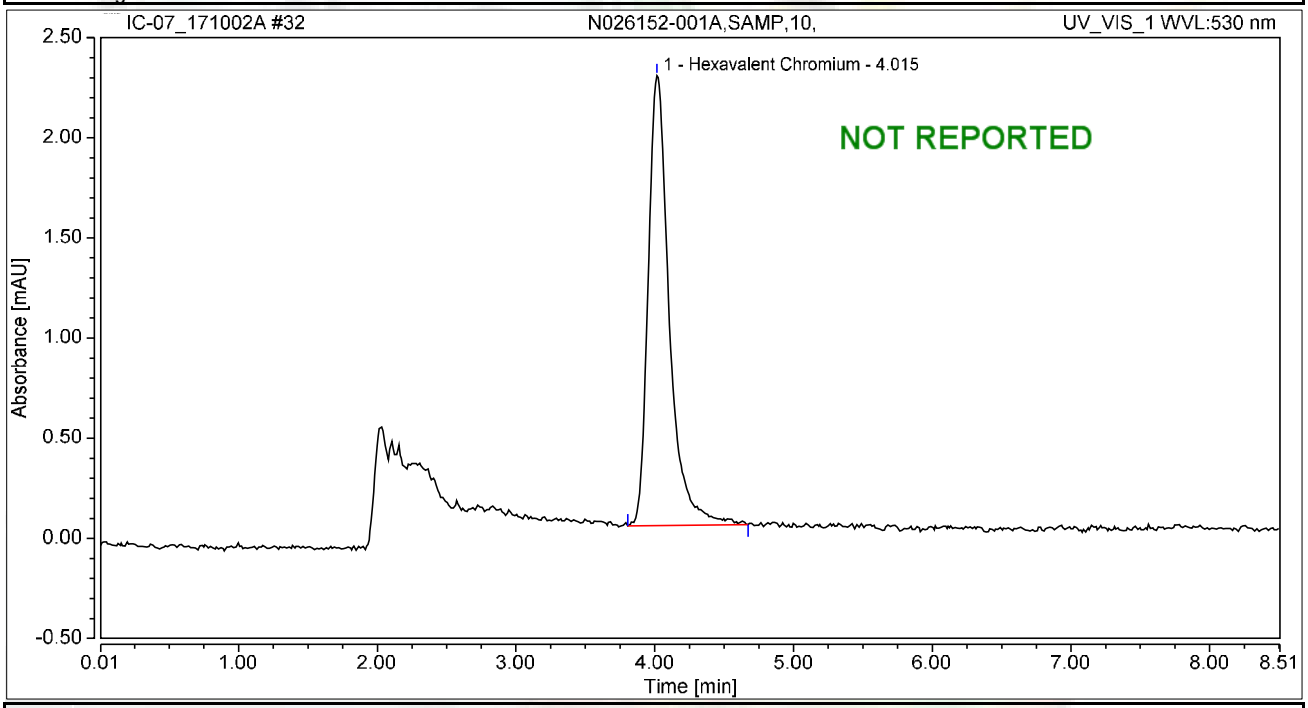
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.973	0.768	3.338	100.00	100.00	3.1065
Total:			**0.768**	**3.338**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026152-001A,SAMP,10,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 15:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

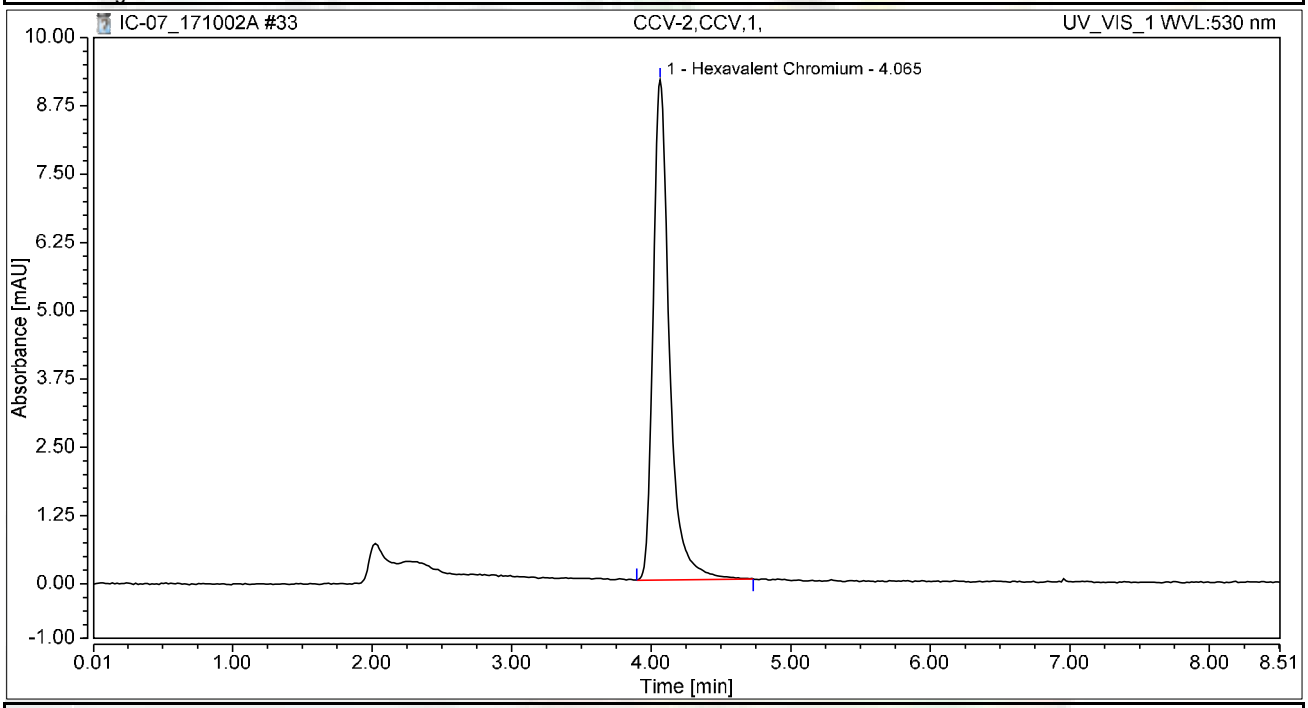
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	0.397	2.247	100.00	100.00	1.6075
Total:			**0.397**	**2.247**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 15:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

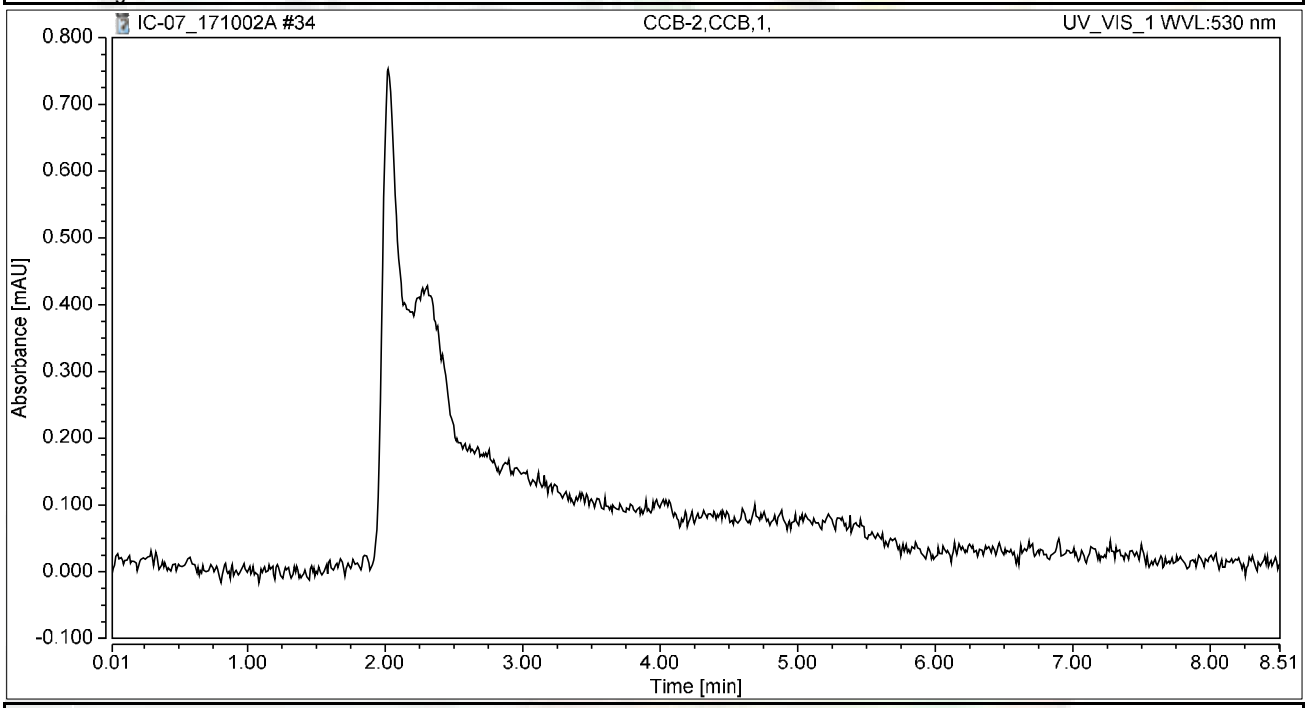
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.244	9.157	100.00	100.00	5.0312
Total:			**1.244**	**9.157**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

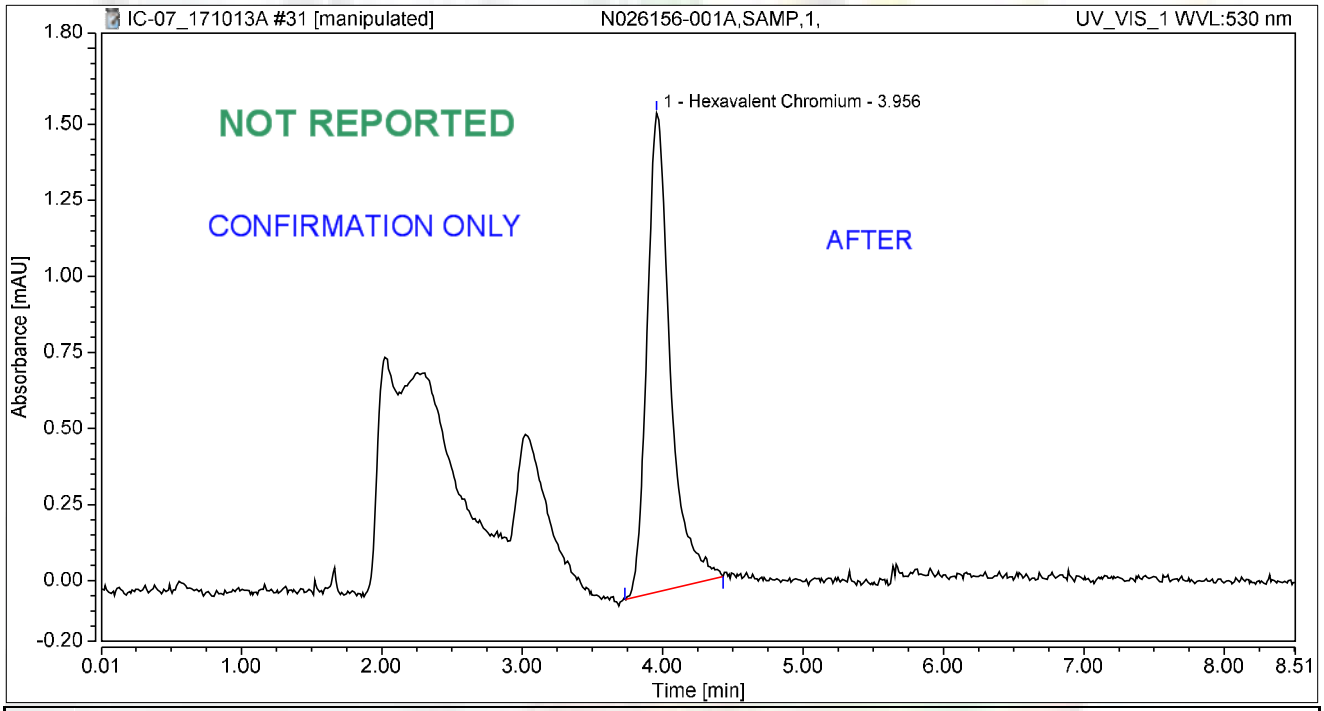
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Oct/17 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.956	0.304	1.576	100.00	100.00	1.2293
Total:			**0.304**	**1.576**	**100.00**	**100.00**	

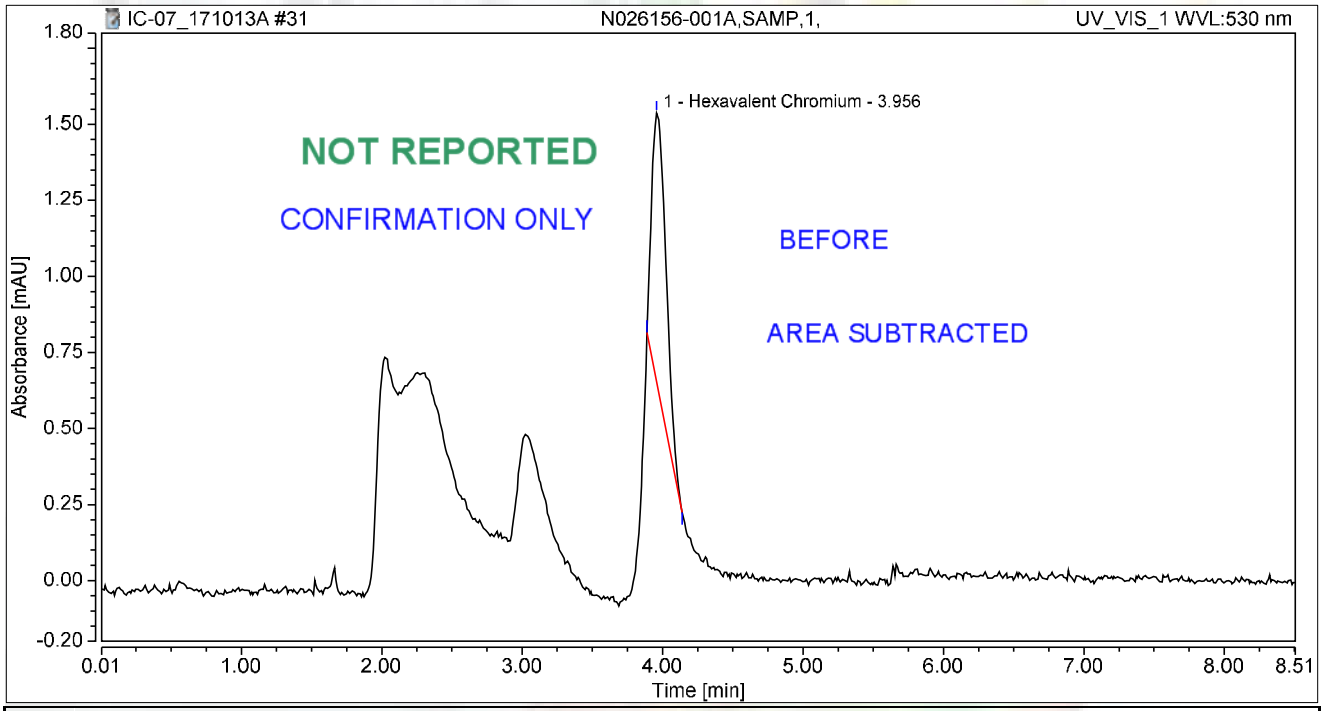
rba 10/13/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Oct/17 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.956	0.106	0.879	100.00	100.00	0.4292
Total:			**0.106**	**0.879**	**100.00**	**100.00**	

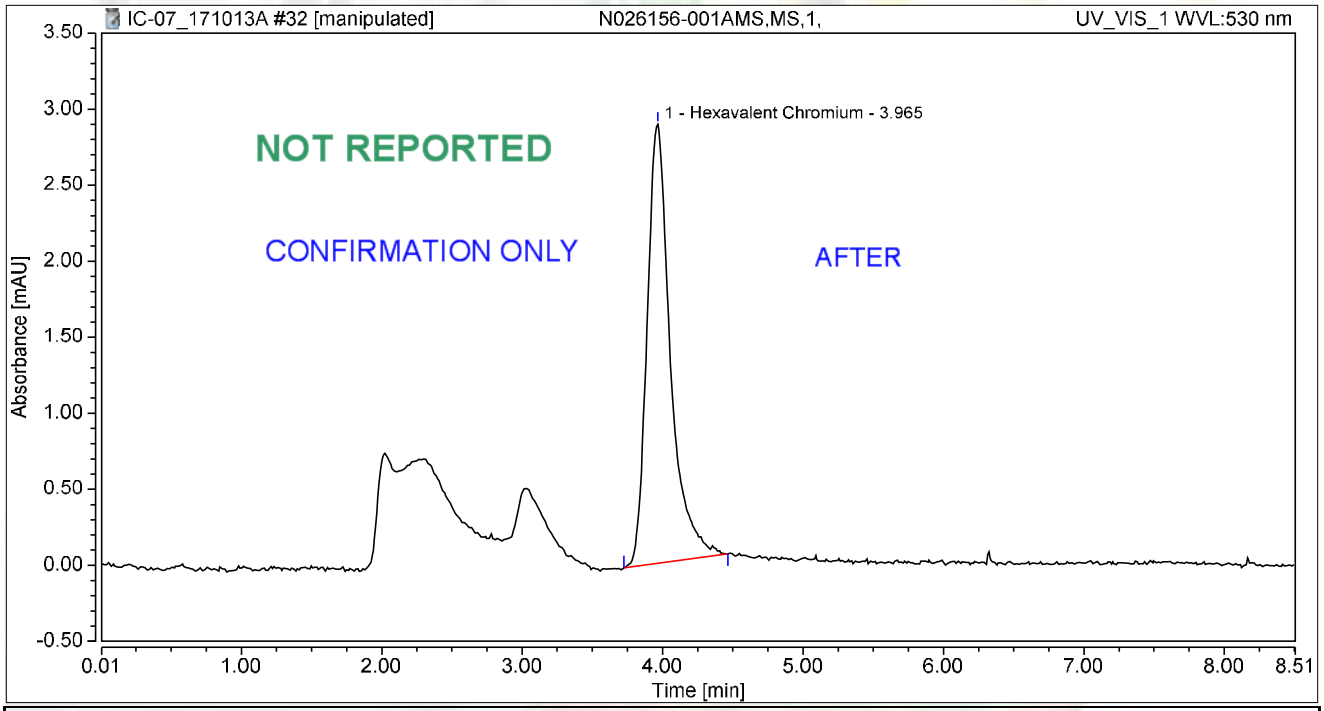
rba 10/13/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Oct/17 12:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.554	2.887	100.00	100.00	2.2431
Total:			**0.554**	**2.887**	**100.00**	**100.00**	

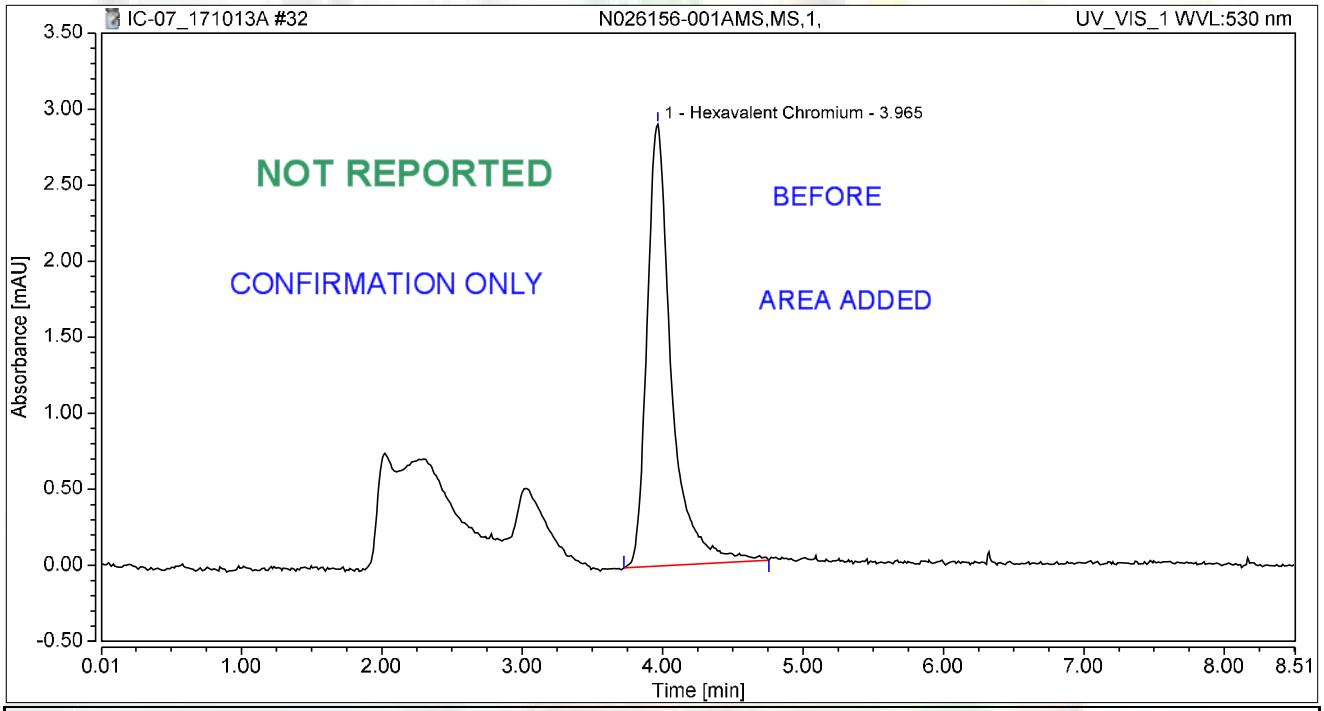
rba 10/13/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026156-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**13/Oct/17 12:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.965	0.585	2.906	100.00	100.00	2.3670
Total:			**0.585**	**2.906**	**100.00**	**100.00**	

rba 10/13/2017

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118390 **Analyst:** QBM

ASSET #: N026156 **Date Analyzed:** 10/7/2017

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RJB 10/11/17 Date: —

2nd Level Reviewer Mary 10/12/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N026156-001C** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 1.3589*1

= 1.3589 mg/L

Reporting results in two significant figures:
Nitrate/Nitrite-N, mg/L = 1.4

RB 10/11/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

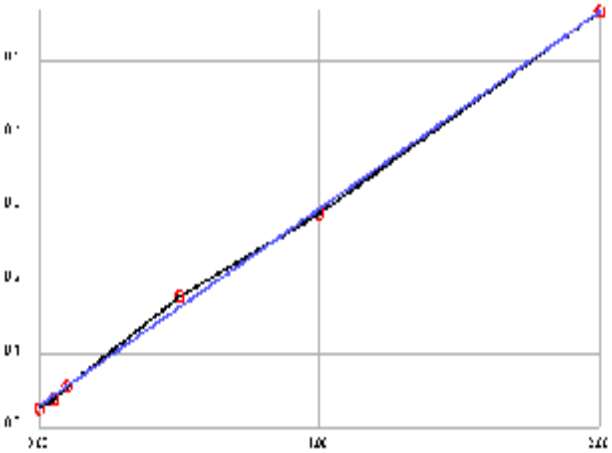
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2693x + 0.029
Correlation	.999241

Calibrant	Energy	Set	Conc
1	0.0249	0.0000	-0.0152
2	0.0380	0.0500	0.0334
3	0.0561	0.1000	0.1006
4	0.1794	0.5000	0.5586
5	0.2912	1.0000	0.9738
6	0.5672	2.0000	1.9988

Notes:

2% CuSO4- R171005A
R1 Buffer- R171005B
R2 Coloring reagent- R171005C

STD 1°- ISST160817E
STD 2°- ISST170419E

RB 10/11/17

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ICV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.494	0.050	0.5000	0	98.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.469	0.050	0.5000	0	93.8	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.517	0.050	0.5000	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ICB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-07-2017 10:25
Time end: 10-07-2017 12:42

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	12:11:23	-0.0074		0.0270
2	<BLANK>	12:12:24	-0.0104		0.0262
3	<CAL1>	12:13:18	-0.0152	[0]	0.0249
4	<CAL2>	12:14:13	0.0334	[0.05]	0.0380
5	<CAL3>	12:15:15	0.1006	[0.1]	0.0561
6	<CAL4>	12:16:09	0.5586	[0.5]	0.1794
7	<CAL5>	12:17:10	0.9738	[1]	0.2912
8	<CAL6>	12:18:06	1.9988	[2]	0.5672
9	,BLANK,BLANK,1,	12:19:01	0.0104		0.0318
10	,ICV,ICV,1,	12:20:01	0.4943		0.1621
11	,ICB,ICB,1,	12:20:57	-0.0034		0.0281
12	,MB-H2O,MBLK,1,	12:21:52	-0.0104		0.0262
13	,LCS-H2O,LCS,1,	12:22:53	0.5266		0.1708
14	,N026114-006C,SAMP,5,	12:23:47	0.5857		0.1867
15	,N026134-001C,SAMP,1,	12:24:43	1.1042		0.3263
16	,N026134-002C,SAMP,1,	12:25:44	0.0334		0.0380
17	,N026134-002CDUP,DUP,1,	12:26:27	0.0160		0.0333
18	,N026134-003C,SAMP,5,	12:27:16	0.6418		0.2018
19	,N026134-003CMS,MS,5,	12:27:58	1.1469		0.3378
20	,N026134-003CMSD,MSD,5,	12:28:47	1.1517		0.3391
21	,BLANK,	12:29:31	0.0078		0.0311
22	,CCV-1,CCV,1,	12:30:13	0.4691		0.1553
23	,CCB-1,CCB,1,	12:31:02	0.0111		0.0320
24	,N026134-004C,SAMP,1,	12:31:44	0.1218		0.0618
25	,N026156-001C,SAMP,1,	12:32:28	1.3589		0.3949
26	,N026156-002C,SAMP,1,	12:33:16	0.8516		0.2583

RB 10/11/17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	**,N026156-003C,SAMP,1,**	12:33:59	0.8761		0.2649
28	**,N026226-001C,SAMP,1,**	12:34:48	0.0282		0.0366
29	**,N026226-002C,SAMP,1,**	12:35:30	0.0728		0.0486
30	**,N026226-003C,SAMP,1,**	12:36:14	1.0815		0.3202
31	**,N026257-001D,SAMP,5,**	12:37:02	0.6028		0.1913
32	**,N026257-002D,SAMP,5,**	12:37:45	0.5385		0.1740
33	**,BLANK,**	12:38:27	-0.0063		0.0273
34	**,CCV-2,CCV,1,**	12:39:16	0.5173		0.1683
35	**,CCB-2,CCB,1,**	12:39:58	-0.0108		0.0261

10/11/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/7/17
Time Analyzed:10:21 AM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R171005B
Color reagent: R171005C
2% Copper Sulfate: R171005A
Ammonium Hydroxide: CINV-170919B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N026114-006C		8.85							
N026134-001C		8.01							
N026134-002C		6.38							
N026134-003C		7.94							
N026134-004C		7.92							
N026156-001C		7.98							
N026156-002C		8.13							
N026156-003C		7.85							
N026226-001C		7.79							
N026226-002C		8.02							
N026226-003C		8.67							
N026257-001D		8.80							
N026257-002D		8.78							

Advanced Technology Laboratories, Inc.
Book # 1

RB 10/11/17

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 63964
ASSET #: N026156

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/12/2017

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X				X	
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X	X		
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

N026156-001B (1st run) =3.3 ug/L :confirmation: 3.3ug/L ; N026156-001A (218.6) = 1.2 ug/L :confirmation: 1.8 ug/L

~~RSD of Se is > 15% on LLICV however, recovery is within criteria.~~

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 10/13/17

2nd Level Reviewer 10/13/2017 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N026156-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 3.29628 * 1 * (25/25)

Chromium , ug/L = 3.29628

Reporting results in two significant figures,

Chromium , ug/L = 3.3

% RSD SUMMARY

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	15.94	15	<PQL	0.11	9.61	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	5.96	15	PASS	0.52	6.36	15	PASS
Std3-5/50 ppb	ICAL	1	5.046	0.36	15	PASS	5.043	1.2	15	PASS
Std4-10/100 ppb	ICAL	1	9.99	1.11	15	PASS	10.08	0.43	15	PASS
Std5-20/200 ppb	ICAL	1	20.28	2.15	15	PASS	20.4	0.91	15	PASS
Std6-40/400 ppb	ICAL	1	40.013	0.76	15	PASS	40.59	1.081	15	PASS
Std7-100/1000 ppb	ICAL	1	99.94	0.81	15	PASS	100.59	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	224.3	0.33	15	PASS	199.54	1.073	15	PASS
ICV	ICV	1	10.91	0.29	15	PASS	109.37	1.54	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.12	1.83	20	PASS	0.55	4.94	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.81	5.4	15	PASS	17.75	6.71	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-63964	LCS	1	11.056	0.32	15	PASS	110.22	0.67	15	PASS
N026093-001B	SAMP	1	<0.000	N/A	15	<PQL	914.92	0.54	15	PASS
N026093-001B	SAMP	5	<0.000	N/A	15	<PQL	185.83	1.39	15	PASS
N026093-001B-PS	PS	1	8.67	0.38	15	PASS	988.69	0.11	15	PASS
N026093-001B-MS	MS	1	8.79	1.087	15	PASS	986.95	0.57	15	PASS
N026093-001B-MSD	MSD	1	8.77	2.58	15	PASS	980.44	1.68	15	PASS
N026093-002B	SAMP	1	508.84	1.041	15	PASS	2.75	2.76	15	PASS
N026093-003B	SAMP	1	491.53	0.52	15	PASS	2.98	1.54	15	PASS
N026093-001B	SAMP	10	<0.000	N/A	15	<PQL	95.47	0.96	15	PASS
CCV1	CCV	1	20.27	1.19	15	PASS	20.39	2.056	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	<0.000	N/A	15	<PQL	19.97	1.89	15	PASS
N026093-001B-PS	PS	10	1.051	2.32	15	PASS	108.25	2.17	15	PASS
N026093-001B-MS	MS	10	1.04	3.26	15	PASS	107.86	0.43	15	PASS
N026093-001B-MSD	MSD	10	1.039	1.47	15	PASS	105.88	0.38	15	PASS
N026093-002B	SAMP	5	104.025	0.73	15	PASS	0.69	1.73	15	PASS
N026093-003B	SAMP	5	100.69	0.71	15	PASS	0.79	6.7	15	PASS
N026114-001B	SAMP	1	<0.000	N/A	15	<PQL	14.31	1.41	15	PASS
N026114-001B	SAMP	5	<0.000	N/A	15	<PQL	3.37	1.74	15	PASS
N026114-002B	SAMP	1	153.5	1.047	15	PASS	172.11	0.49	15	PASS
N026114-002B	SAMP	5	31.17	0.97	15	PASS	40.15	1.038	15	PASS
CCV2	CCV	1	20.5	1.4	15	PASS	20.25	1.0028	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026114-003B	SAMP	1	517.17	1.11	15	PASS	8.47	1.86	15	PASS
N026114-003B	SAMP	5	104.94	1.056	15	PASS	1.98	0.75	15	PASS
N026114-004B	SAMP	1	374.69	0.81	15	PASS	6.17	1.54	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	71.25	0.36	15	PASS	1.43	2.99	15	PASS
N026114-005B	SAMP	1	4.21	0.84	15	PASS	101.3	2.006	15	PASS
N026114-006B	SAMP	1	3.64	1.12	15	PASS	100.43	0.53	15	PASS
N026114-007B	SAMP	1	3.52	1.7	15	PASS	98.79	1.91	15	PASS
N026114-008B	SAMP	1	20823.022	0.37	15	PASS	2.5	5.11	15	PASS
N026114-008B	SAMP	250	95.45	0.87	15	PASS	0.0035	97.96	15	<PQL
N026134-001B	SAMP	1	39.38	0.6	15	PASS	336.59	1.58	15	PASS
CCV3	CCV	1	20.5	1.05	15	PASS	20.16	0.87	15	PASS
CCB3	CCB	1	0.11	3.0027	15	PASS	<0.000	N/A	15	<PQL
N026134-001B	SAMP	5	9.17	2.24	15	PASS	68.077	2.087	15	PASS
N026134-002B	SAMP	1	0.11	24.78	15	<PQL	112.74	0.65	15	PASS
N026134-002B	SAMP	5	0.058	25.33	15	<PQL	25.75	3.73	15	PASS
N026134-003B	SAMP	1	40.74	4.24	15	PASS	33.71	1.11	15	PASS
N026134-003B	SAMP	5	10.12	2.47	15	PASS	7.84	4.14	15	PASS
N026134-004B	SAMP	1	3.57	3.18	15	PASS	8.78	1.2	15	PASS
N026134-004B	SAMP	5	0.85	2.67	15	PASS	2.092	0.35	15	PASS
N026156-001B	SAMP	1	3.3	1.7	15	PASS	1.75	4.73	15	PASS
N026156-001B	SAMP	5	0.75	2.7	15	PASS	0.43	7.77	15	PASS
N026156-002B	SAMP	1	98.93	1.42	15	PASS	57.33	0.72	15	PASS
CCV4	CCV	1	20.38	2.64	15	PASS	19.85	1.64	15	PASS
CCB4	CCB	1	0.018	97.58	15	<PQL	<0.000	N/A	15	<PQL
N026156-002B	SAMP	5	23.85	1.52	15	PASS	13.77	3	15	PASS
N026156-003B	SAMP	1	97.29	0.74	15	PASS	60.006	1	15	PASS
N026156-003B	SAMP	5	22.73	3.0099	15	PASS	13.83	2.059	15	PASS
N026114-007B	SAMP	1	3.57	1.84	15	PASS	98.11	0.56	15	PASS
N026156-001B	SAMP	1	3.27	1.94	15	PASS	1.67	2.4	15	PASS
CCV5	CCV	1	20.58	0.89	15	PASS	20.34	1.084	15	PASS
CCB5	CCB	1	0.0042	116.44	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	1.06	1.22	20	PASS	0.57	2.48	20	PASS
ICSA2	ICSA	1	0.026	87.44	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.32	0.96	15	PASS	17.2	0.76	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.095	11.3	15	PASS	0.12	26.84	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	7.62	15	PASS	0.46	10.85	15	PASS
Std3-5/50 ppb	ICAL	1	4.95	1.093	15	PASS	4.79	6.98	15	PASS
Std4-10/100 ppb	ICAL	1	10.021	2.22	15	PASS	9.91	7.64	15	PASS
Std5-20/200 ppb	ICAL	1	19.72	0.78	15	PASS	19.95	6.29	15	PASS
Std6-40/400 ppb	ICAL	1	39.68	0.87	15	PASS	38.85	2.077	15	PASS
Std7-100/1000 ppb	ICAL	1	100.12	0.59	15	PASS	98.98	2.36	15	PASS
Std8-200/2000 ppb	ICAL	1	200.03	1.14	15	PASS	200.76	0.45	15	PASS
ICV	ICV	1	10.92	0.31	15	PASS	10.77	2.14	15	PASS
ICB	ICB	1	0.0078	127.53	15	<PQL	0.03	163.71	15	<PQL
LLICV	CCV1	1	0.12	15.92	20	PASS	0.56	20.35	20	~~NR~~ Failed
ICSA1	ICSA	1	0.042	17.27	15	<PQL	0.072	65.049	15	<PQL
ICSAB1	ICSAB	1	20.67	3.63	15	PASS	21.14	1.94	15	PASS
MB-63964	MBLK	1	<0.000	N/A	15	<PQL	0.017	66.91	15	<PQL
LCS-63964	LCS	1	10.95	0.75	15	PASS	10.4	4.19	15	PASS
N026093-001B	SAMP	1	4.21	2.23	15	PASS	0.096	41.48	15	<PQL
N026093-001B	SAMP	5	0.88	0.3	15	PASS	0.034	18.27	15	<PQL
N026093-001B-PS	PS	1	13.57	2.43	15	PASS	9.62	2.22	15	PASS
N026093-001B-MS	MS	1	14.095	1.69	15	PASS	9.15	8.12	15	PASS
N026093-001B-MSD	MSD	1	13.86	0.7	15	PASS	9.68	4.92	15	PASS
N026093-002B	SAMP	1	1.58	1.22	15	PASS	3.37	2.51	15	PASS
N026093-003B	SAMP	1	1.55	2.85	15	PASS	3.58	7.95	15	PASS
N026093-001B	SAMP	10	0.47	1.77	15	PASS	0.025	116.0007	15	<PQL
CCV1	CCV	1	19.94	0.91	15	PASS	19.83	0.77	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026093-001B	SAMP	50	0.091	7.8	15	PASS	0.014	158.36	15	<PQL
N026093-001B-PS	PS	10	1.62	0.22	15	PASS	1.18	19.95	15	NR!
N026093-001B-MS	MS	10	1.6	0.37	15	PASS	1.17	6.67	15	PASS
N026093-001B-MSD	MSD	10	1.59	2.73	15	PASS	1.15	12.088	15	PASS
N026093-002B	SAMP	5	0.34	12.23	15	PASS	0.73	10.47	15	PASS
N026093-003B	SAMP	5	0.31	8.15	15	PASS	0.82	24.36	15	NR!
N026114-001B	SAMP	1	5.26	4.64	15	PASS	3.49	0.58	15	PASS
N026114-001B	SAMP	5	1.17	1.54	15	PASS	0.68	12.25	15	PASS
N026114-002B	SAMP	1	0.43	9.57	15	PASS	8.99	2.48	15	PASS
N026114-002B	SAMP	5	0.088	11.57	15	PASS	1.87	6.37	15	PASS
CCV2	CCV	1	20.024	0.67	15	PASS	20.27	3.32	15	PASS
CCB2	CCB	1	0.00091	603.1	15	<PQL	0.0072	399.17	15	<PQL
N026114-003B	SAMP	1	1.94	6.17	15	PASS	6.53	6.26	15	PASS
N026114-003B	SAMP	5	0.4	3.91	15	PASS	1.41	5.69	15	PASS
N026114-004B	SAMP	1	2.23	3.59	15	PASS	10.91	2.28	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	0.46	1.93	15	PASS	2.21	3.79	15	PASS
N026114-005B	SAMP	1	7.72	1.67	15	PASS	1.24	9.88	15	PASS
N026114-006B	SAMP	1	7.73	1.96	15	PASS	1.27	4.52	15	PASS
N026114-007B	SAMP	1	7.37	4.01	15	PASS	1.3	15.63	15	NR!
N026114-008B	SAMP	1	2.72	1.6	15	PASS	14.0075	2.67	15	PASS
N026114-008B	SAMP	250	<0.000	N/A	15	<PQL	0.056	59.39	15	<PQL
N026134-001B	SAMP	1	1.58	7.19	15	PASS	1.81	11.15	15	PASS
CCV3	CCV	1	19.79	0.79	15	PASS	20.78	2.14	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.018	141.96	15	<PQL
N026134-001B	SAMP	5	0.33	2.3	15	PASS	0.4	33.24	15	<PQL
N026134-002B	SAMP	1	4.28	1.37	15	PASS	0.13	33.73	15	<PQL
N026134-002B	SAMP	5	0.97	9.78	15	PASS	0.011	178.89	15	<PQL
N026134-003B	SAMP	1	1.33	4.88	15	PASS	3.58	11.5	15	PASS
N026134-003B	SAMP	5	0.29	8.66	15	PASS	0.86	10.026	15	PASS
N026134-004B	SAMP	1	14.75	2.86	15	PASS	0.27	12.9	15	PASS
N026134-004B	SAMP	5	3.28	2.18	15	PASS	0.04	78.66	15	<PQL
N026156-001B	SAMP	1	1.43	8.099	15	PASS	0.97	33.57	15	NR!
N026156-001B	SAMP	5	0.29	6.68	15	PASS	0.13	19.41	15	<PQL
N026156-002B	SAMP	1	10.82	1.22	15	PASS	1.18	6.99	15	PASS
CCV4	CCV	1	19.9	0.57	15	PASS	22.088	3.43	15	PASS
CCB4	CCB	1	0.001	272.48	15	<PQL	0.000028	48404.27	15	<PQL
N026156-002B	SAMP	5	2.4	0.92	15	PASS	0.25	3.67	15	PASS
N026156-003B	SAMP	1	10.57	1.38	15	PASS	1.046	15.07	15	NR!
N026156-003B	SAMP	5	2.42	4.4	15	PASS	0.25	15.9	15	<PQL
N026114-007B	SAMP	1	7.46	3.23	15	PASS	1.25	8.96	15	PASS
N026156-001B	SAMP	1	1.36	3.84	15	PASS	0.97	9.31	15	PASS
CCV5	CCV	1	19.79	0.86	15	PASS	19.63	5.91	15	PASS
CCB5	CCB	1	0.0056	82.96	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	0.11	15.33	20	PASS	0.46	19.93	20	PASS
ICSA2	ICSA	1	0.031	22.63	15	<PQL	0.076	67.48	15	<PQL
ICSAB2	ICSAB	1	20.42	2.082	15	PASS	19.097	1.015	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.089	4.4	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	1.5	15	PASS
Std3-5/50 ppb	ICAL	1	4.88	0.72	15	PASS
Std4-10/100 ppb	ICAL	1	9.79	0.52	15	PASS
Std5-20/200 ppb	ICAL	1	19.65	0.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.34	1.0084	15	PASS
Std7-100/1000 ppb	ICAL	1	99.21	0.52	15	PASS
Std8-200/2000 ppb	ICAL	1	200.57	0.14	15	PASS
ICV	ICV	1	10.92	1.33	15	PASS
ICB	ICB	1	0.058	18.18	15	<PQL
LLICV	CCV1	1	0.48	4.21	20	PASS
ICSA1	ICSA	1	0.14	7.34	15	PASS
ICSAB1	ICSAB	1	22.3	2.86	15	PASS
MB-63964	MBLK	1	0.028	15.33	15	<PQL
LCS-63964	LCS	1	10.76	0.84	15	PASS
N026093-001B	SAMP	1	61.88	1.86	15	PASS
N026093-001B	SAMP	5	12.9	0.79	15	PASS
N026093-001B-PS	PS	1	71.75	0.029	15	PASS
N026093-001B-MS	MS	1	71.71	1.25	15	PASS
N026093-001B-MSD	MSD	1	71.22	1.035	15	PASS
N026093-002B	SAMP	1	13.74	1.56	15	PASS
N026093-003B	SAMP	1	13.92	1.32	15	PASS
N026093-001B	SAMP	10	6.5	2.72	15	PASS
CCV1	CCV	1	19.62	0.9	15	PASS
CCB1	CCB	1	0.019	25.51	15	<PQL
N026093-001B	SAMP	50	1.27	2.53	15	PASS
N026093-001B-PS	PS	10	7.66	0.98	15	PASS
N026093-001B-MS	MS	10	7.54	0.81	15	PASS
N026093-001B-MSD	MSD	10	7.53	0.83	15	PASS
N026093-002B	SAMP	5	2.87	2.99	15	PASS
N026093-003B	SAMP	5	2.89	1.068	15	PASS
N026114-001B	SAMP	1	52.91	0.41	15	PASS
N026114-001B	SAMP	5	11.2	0.65	15	PASS
N026114-002B	SAMP	1	31.33	0.56	15	PASS
N026114-002B	SAMP	5	6.58	0.75	15	PASS
CCV2	CCV	1	19.37	0.77	15	PASS
CCB2	CCB	1	0.024	11.61	15	PASS
N026114-003B	SAMP	1	27.42	1.49	15	PASS
N026114-003B	SAMP	5	5.86	1.54	15	PASS
N026114-004B	SAMP	1	81.1	0.84	15	PASS

PERCENT RSD SUMMARY: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N026114-004B	SAMP	5	16.5	0.99	15	PASS
N026114-005B	SAMP	1	37.79	0.6	15	PASS
N026114-006B	SAMP	1	37.36	0.55	15	PASS
N026114-007B	SAMP	1	36.23	1.51	15	PASS
N026114-008B	SAMP	1	36.24	0.59	15	PASS
N026114-008B	SAMP	250	0.17	2.11	15	PASS
N026134-001B	SAMP	1	21.3	1.78	15	PASS
CCV3	CCV	1	19.36	1.64	15	PASS
CCB3	CCB	1	0.023	30.24	15	<PQL
N026134-001B	SAMP	5	4.62	2.81	15	PASS
N026134-002B	SAMP	1	40.27	1.24	15	PASS
N026134-002B	SAMP	5	8.3	3.21	15	PASS
N026134-003B	SAMP	1	30.15	2.89	15	PASS
N026134-003B	SAMP	5	6.28	3.13	15	PASS
N026134-004B	SAMP	1	73.46	1.73	15	PASS
N026134-004B	SAMP	5	15.5	2.31	15	PASS
N026156-001B	SAMP	1	15.8	0.59	15	PASS
N026156-001B	SAMP	5	3.42	0.91	15	PASS
N026156-002B	SAMP	1	72.81	0.29	15	PASS
CCV4	CCV	1	18.79	1.57	15	PASS
CCB4	CCB	1	0.03	22.21	15	<PQL
N026156-002B	SAMP	5	15.5	0.5	15	PASS
N026156-003B	SAMP	1	71.56	1.38	15	PASS
N026156-003B	SAMP	5	14.9	0.62	15	PASS
N026114-007B	SAMP	1	35.7	0.63	15	PASS
N026156-001B	SAMP	1	15.81	0.65	15	PASS
CCV5	CCV	1	19.21	0.46	15	PASS
CCB5	CCB	1	0.024	12.13	15	PASS
LLCCV1	CCV2	1	0.5	1.64	20	PASS
ICSA2	ICSA	1	0.11	4.88	15	PASS
ICSAB2	ICSAB	1	21.35	0.56	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012001.D	RINSE	RINSE	1	10/12/17 5:01 AM
A1012002.D	Cal Blank	IBLK	1	10/12/17 5:06 AM
A1012003.D	Std1-0.1/1 ppb	ICAL	1	10/12/17 5:12 AM
A1012004.D	Std2-0.5/5 ppb	ICAL	1	10/12/17 5:18 AM
A1012005.D	Std3-5/50 ppb	ICAL	1	10/12/17 5:23 AM
A1012006.D	Std4-10/100 ppb	ICAL	1	10/12/17 5:29 AM
A1012007.D	Std5-20/200 ppb	ICAL	1	10/12/17 5:34 AM
A1012008.D	Std6-40/400 ppb	ICAL	1	10/12/17 5:40 AM
A1012009.D	Std7-100/1000 ppb	ICAL	1	10/12/17 5:45 AM
A1012010.D	Std8-200/2000 ppb	ICAL	1	10/12/17 5:51 AM
A1012011.D	ICV	ICV	1	10/12/17 5:56 AM
A1012012.D	ICB	ICB	1	10/12/17 6:02 AM
A1012013.D	LLICV	CCV1	1	10/12/17 6:07 AM
A1012014.D	ICSA1	ICSA	1	10/12/17 6:13 AM
A1012015.D	ICSAB1	ICSAB	1	10/12/17 6:18 AM
A1012016.D	MB-63964	MBLK	1	10/12/17 6:24 AM
A1012017.D	LCS-63964	LCS	1	10/12/17 6:29 AM
A1012018.D	N026093-001B	SAMP	1	10/12/17 6:35 AM
A1012019.D	N026093-001B	SAMP	5	10/12/17 6:41 AM
A1012020.D	N026093-001B-PS	PS	1	10/12/17 6:46 AM
A1012021.D	N026093-001B-MS	MS	1	10/12/17 6:52 AM
A1012022.D	N026093-001B-MSD	MSD	1	10/12/17 6:57 AM
A1012023.D	N026093-002B	SAMP	1	10/12/17 7:03 AM
A1012024.D	N026093-003B	SAMP	1	10/12/17 7:08 AM
A1012025.D	N026093-001B	SAMP	10	10/12/17 7:14 AM
A1012026.D	CCV1	CCV	1	10/12/17 7:19 AM
A1012027.D	CCB1	CCB	1	10/12/17 7:25 AM
A1012028.D	N026093-001B	SAMP	50	10/12/17 7:30 AM
A1012029.D	N026093-001B-PS	PS	10	10/12/17 7:36 AM
A1012030.D	N026093-001B-MS	MS	10	10/12/17 7:41 AM
A1012031.D	N026093-001B-MSD	MSD	10	10/12/17 7:47 AM
A1012032.D	N026093-002B	SAMP	5	10/12/17 7:52 AM
A1012033.D	N026093-003B	SAMP	5	10/12/17 7:58 AM
A1012034.D	N026114-001B	SAMP	1	10/12/17 8:03 AM
A1012035.D	N026114-001B	SAMP	5	10/12/17 8:09 AM
A1012036.D	N026114-002B	SAMP	1	10/12/17 8:15 AM
A1012037.D	N026114-002B	SAMP	5	10/12/17 8:20 AM
A1012038.D	CCV2	CCV	1	10/12/17 8:26 AM
A1012039.D	CCB2	CCB	1	10/12/17 8:32 AM
A1012040.D	N026114-003B	SAMP	1	10/12/17 8:37 AM
A1012041.D	N026114-003B	SAMP	5	10/12/17 8:43 AM
A1012042.D	N026114-004B	SAMP	1	10/12/17 8:48 AM

INJECTION LOG: 171012A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1012043.D	N026114-004B	SAMP	5	10/12/17 8:54 AM
A1012044.D	N026114-005B	SAMP	1	10/12/17 8:59 AM
A1012045.D	N026114-006B	SAMP	1	10/12/17 9:05 AM
A1012046.D	N026114-007B	SAMP	1	10/12/17 9:10 AM
A1012047.D	N026114-008B	SAMP	1	10/12/17 9:16 AM
A1012048.D	N026114-008B	SAMP	250	10/12/17 9:21 AM
A1012049.D	N026134-001B	SAMP	1	10/12/17 9:27 AM
A1012050.D	CCV3	CCV	1	10/12/17 9:32 AM
A1012051.D	CCB3	CCB	1	10/12/17 9:38 AM
A1012052.D	N026134-001B	SAMP	5	10/12/17 9:43 AM
A1012053.D	N026134-002B	SAMP	1	10/12/17 9:49 AM
A1012054.D	N026134-002B	SAMP	5	10/12/17 9:55 AM
A1012055.D	N026134-003B	SAMP	1	10/12/17 10:00 AM
A1012056.D	N026134-003B	SAMP	5	10/12/17 10:06 AM
A1012057.D	N026134-004B	SAMP	1	10/12/17 10:11 AM
A1012058.D	N026134-004B	SAMP	5	10/12/17 10:17 AM
A1012059.D	N026156-001B	SAMP	1	10/12/17 10:22 AM
A1012060.D	N026156-001B	SAMP	5	10/12/17 10:28 AM
A1012061.D	N026156-002B	SAMP	1	10/12/17 10:33 AM
A1012062.D	CCV4	CCV	1	10/12/17 10:39 AM
A1012063.D	CCB4	CCB	1	10/12/17 10:44 AM
A1012064.D	N026156-002B	SAMP	5	10/12/17 10:50 AM
A1012065.D	N026156-003B	SAMP	1	10/12/17 10:55 AM
A1012066.D	N026156-003B	SAMP	5	10/12/17 11:01 AM
A1012067.D	N026114-007B	SAMP	1	10/12/17 11:07 AM
A1012068.D	N026156-001B	SAMP	1	10/12/17 11:12 AM
A1012069.D	CCV5	CCV	1	10/12/17 11:18 AM
A1012070.D	CCB5	CCB	1	10/12/17 11:23 AM
A1012071.D	LLCCV1	CCV2	1	10/12/17 11:29 AM
A1012072.D	ICSA2	ICSA	1	10/12/17 11:35 AM
A1012073.D	ICSAB2	ICSAB	1	10/12/17 11:40 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**

Reviewed/ Date: 10/13/2017
Initials/ Date: CEI 10/13/17

Prep Batch **63964** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-63964	Aqueous		25	☐	0	0	25	1.000		
MB-63964	Aqueous		25	☐	0	0	25	1.000		
N026093-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026093-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N026114-007B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **9/29/2017 8:23:28 A**
Prep End Date: **9/29/2017 1:00:00 P**
Prep Batch **63964** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 10/13/2017
Initials/ Date: CE 10/13/17
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-13**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N026114-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026134-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026156-003B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 Oct 2017 02:47:04 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	165511.00	0.00	
24 Mg	499304.00	0.00	
25 Mg	65337.40	0.00	
26 Mg	75826.70	0.00	
59 Co	653726.00	0.00	
115 In	999173.00	0.00	
206 Pb	295094.00	0.00	
207 Pb	259020.00	0.00	
208 Pb	634328.00	0.00	

RSD (%)

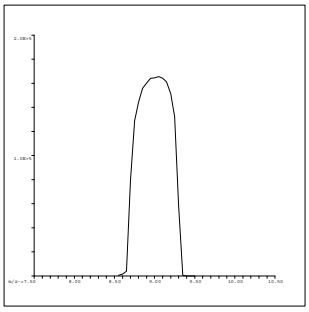
Element	Actual	Required	Flag
9 Be	1.01	5.00	
24 Mg	0.65	5.00	
25 Mg	2.02	5.00	
26 Mg	1.03	5.00	
59 Co	0.71	5.00	
115 In	0.59	5.00	
206 Pb	0.73	5.00	
207 Pb	1.06	5.00	
208 Pb	0.61	5.00	

Ion Ratio

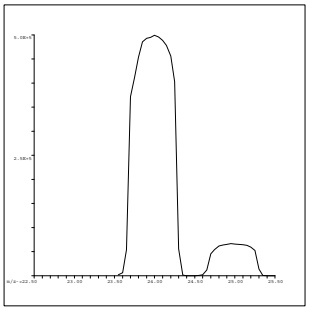
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

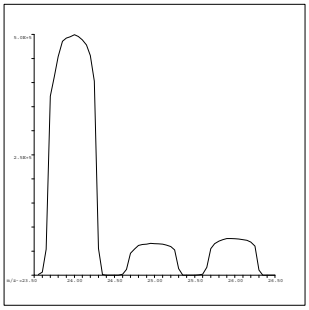
Element	Actual	Required	Flag



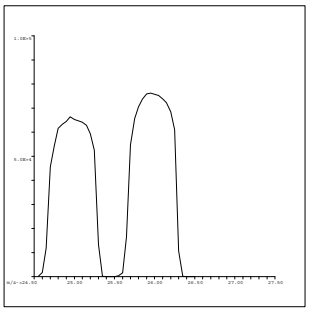
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



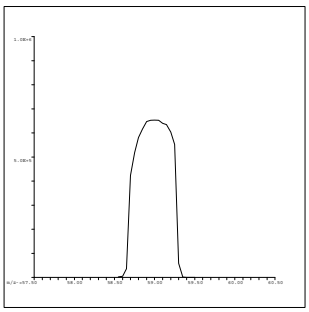
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



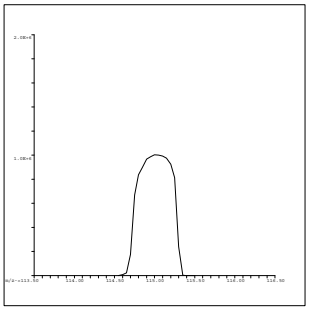
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



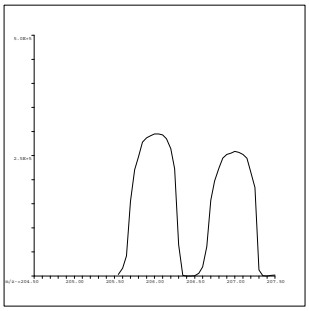
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



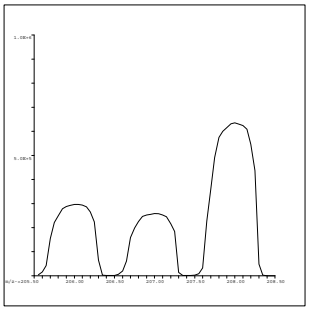
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



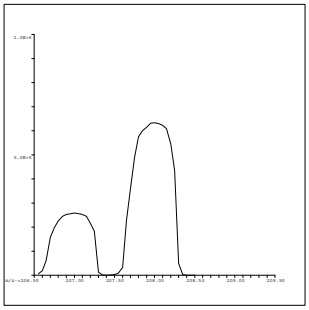
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 171012A

Instrument ID: ICPMS-02

Analyte	Data File	A1012002.D	A1012003.D	A1012004.D	A1012005.D	A1012006.D	A1012007.D	A1012008.D	A1012009.D	A1012010.D	
	Acq. Date-Time	10/12/2017 05:06 AM	10/12/2017 05:12 AM	10/12/2017 05:18 AM	10/12/2017 05:23 AM	10/12/2017 05:29 AM	10/12/2017 05:34 AM	10/12/2017 05:40 AM	10/12/2017 05:45 AM	10/12/2017 05:51 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	108669.5		119532.6	119350.5	119064.2	116748.3	117079.1	114999.5	114629.2	
55 Mn [2]	CPS	146		2606.6	23833.4	47355.5	93813.5	187032.6	454984	899628.9	1.0000
52 Cr [2]	CPS	845.4		5148.5	45335.4	88579.8	175407.8	346343	848306.7	1896775.6	1.0000
72 Ge (ISTD) [1]	CPS	97228.3		98659.8	98939.5	97209.3	94628.7	96625.8	93800.7	91903	
78 Se [1]	CPS	6.7		166.7	1686.8	3427.2	6700.6	13323.8	32941	65460.7	1.0000
72 Ge (ISTD) [2]	CPS	75383.9	83851.2	84051.4	83514.8	82923.2	82408.5	82254.5	79419.3	79391.6	
75 As [2]	CPS	27.1	124	496	4919	9849.3	19231	38602.5	93998.9	187681.1	1.0000
103 Rh (ISTD) [2]	CPS	2243050.3		2483146.6	2511454.4	2474294.3	2454264.4	2482662.3	2384160	2381162.9	
95 Mo [2]	CPS	46.7		2621.4	27234.1	53833.5	107080.9	216771.2	525013.3	1060017.1	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.925	0.10	10.00	0	109	90	110				
Manganese	109.366	0.50	100.0	0	109	90	110				
Molybdenum	10.916	0.50	10.00	0	109	90	110				
Selenium	10.769	0.50	10.00	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.117	0.10	0.1000	0	117	80	120				
Manganese	0.554	0.50	0.5000	0	111	80	120				
Molybdenum	0.483	0.50	0.5000	0	96.6	80	120				
Selenium	0.556	0.50	0.5000	0	111	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.944	0.10	20.00	0	99.7	90	110				
Manganese	20.386	0.50	20.00	0	102	90	110				
Molybdenum	19.622	0.50	20.00	0	98.1	90	110				
Selenium	19.826	0.50	20.00	0	99.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.024	0.10	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.246	0.50	20.00	0	101	90	110				
Molybdenum	19.365	0.50	20.00	0	96.8	90	110				
Selenium	20.266	0.50	20.00	0	101	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.793	0.10	20.00	0	99.0	90	110				
Manganese	20.157	0.50	20.00	0	101	90	110				
Molybdenum	19.357	0.50	20.00	0	96.8	90	110				
Selenium	20.781	0.50	20.00	0	104	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.901	0.10	20.00	0	99.5	90	110				
Manganese	19.855	0.50	20.00	0	99.3	90	110				
Molybdenum	18.795	0.50	20.00	0	94.0	90	110				
Selenium	22.088	0.50	20.00	0	110	90	110				S

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCV** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.787	0.10	20.00	0	98.9	90	110				
Manganese	20.336	0.50	20.00	0	102	90	110				
Molybdenum	19.210	0.50	20.00	0	96.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Se on CCV4 is within +/- 10% of criteria.

10/13/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCV**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.627	0.50	20.00	0	98.1	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.110	0.10	0.1000	0	110	70	130				
Manganese	0.572	0.50	0.5000	0	114	70	130				
Molybdenum	0.503	0.50	0.5000	0	101	70	130				
Selenium	0.461	0.50	0.5000	0	92.3	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.906	1.0	10.00	0	109	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.125	1.0	1.000	0	112	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.275	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.504	1.0	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.500	1.0	20.00	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.376	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCV**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.579	1.0	20.00	0	103	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.060	1.0	1.000	0	106	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB** SampType: **ICB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **ICB** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.058	0.50									
Selenium	0.030	0.50									

Sample ID **CCB1** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCB** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCB** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118492**
Client ID: **CCB** Batch ID: **R118492** TestNo: **EPA 6020** Analysis Date: **10/12/2017** SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **CCB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.111	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **CCB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.042	0.10									
Manganese	ND	0.50									
Molybdenum	0.142	0.50									
Selenium	0.072	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.672	0.10	20.00	0	103	80	120				
Manganese	17.745	0.50	20.00	0	88.7	80	120				
Molybdenum	22.300	0.50	20.00	0	111	80	120				
Selenium	21.138	0.50	20.00	0	106	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSA**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.031	0.10									
Manganese	ND	0.50									
Molybdenum	0.113	0.50									
Selenium	0.076	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.424	0.10	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ICSAB**	Batch ID: **R118492**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.202	0.50	20.00	0	86.0	80	120				
Molybdenum	21.354	0.50	20.00	0	107	80	120				
Selenium	19.097	0.50	20.00	0	95.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.814	1.0	20.00	0	99.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSA**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.026	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ICSAB**	Batch ID: **R118491**	TestNo: **EPA 6020**		Analysis Date: **10/12/2017**	SeqNo: **2789613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.315	1.0	20.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	108669.5	108669.5	100	PASS	70-125	75383.9	75383.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	119552.6	108669.5	110.02	PASS	70-125	83851.2	75383.9	111.23	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119532.6	108669.5	110	PASS	70-125	84051.4	75383.9	111.5	PASS	70-125
Std3-5/50 ppb	ICAL	1	119350.5	108669.5	109.83	PASS	70-125	83514.8	75383.9	110.79	PASS	70-125
Std4-10/100 ppb	ICAL	1	119064.2	108669.5	109.57	PASS	70-125	82923.2	75383.9	110	PASS	70-125
Std5-20/200 ppb	ICAL	1	116748.3	108669.5	107.43	PASS	70-125	82408.5	75383.9	109.32	PASS	70-125
Std6-40/400 ppb	ICAL	1	117079.1	108669.5	107.74	PASS	70-125	82254.5	75383.9	109.11	PASS	70-125
Std7-100/1000 ppb	ICAL	1	114999.5	108669.5	105.83	PASS	70-125	79419.3	75383.9	105.35	PASS	70-125
Std8-200/2000 ppb	ICAL	1	114629.2	108669.5	105.48	PASS	70-125	79391.6	75383.9	105.32	PASS	70-125
ICV	ICV	1	103654.5	108669.5	95.39	PASS	70-125	74276.2	75383.9	98.53	PASS	70-125
ICB	ICB	1	106373.2	108669.5	97.89	PASS	70-125	76222.1	75383.9	101.11	PASS	70-125
LLICV	CCV1	1	107263.2	108669.5	98.71	PASS	70-125	78829.9	75383.9	104.57	PASS	70-125
ICSA1	ICSA	1	119463.8	108669.5	109.93	PASS	70-125	83102.1	75383.9	110.24	PASS	70-125
ICSAB1	ICSAB	1	110208.5	108669.5	101.42	PASS	70-125	74165.3	75383.9	98.38	PASS	70-125
MB-63964	MBLK	1	116354.9	108669.5	107.07	PASS	70-125	81787.8	75383.9	108.5	PASS	70-125
LCS-63964	LCS	1	105476.7	108669.5	97.062	PASS	70-125	75647	75383.9	100.35	PASS	70-125
N026093-001B	SAMP	1	100828.7	108669.5	92.78	PASS	70-125	63981.8	75383.9	84.87	PASS	70-125
N026093-001B	SAMP	5	107726.9	108669.5	99.13	PASS	70-125	74579.1	75383.9	98.93	PASS	70-125
N026093-001B-PS	PS	1	107359.7	108669.5	98.79	PASS	70-125	68070.5	75383.9	90.3	PASS	70-125
N026093-001B-MS	MS	1	107438.7	108669.5	98.87	PASS	70-125	67550.7	75383.9	89.61	PASS	70-125
N026093-001B-MSD	MSD	1	105473.6	108669.5	97.059	PASS	70-125	66107.4	75383.9	87.69	PASS	70-125
N026093-002B	SAMP	1	112622.6	108669.5	103.64	PASS	70-125	73821.1	75383.9	97.93	PASS	70-125
N026093-003B	SAMP	1	114742.9	108669.5	105.59	PASS	70-125	74430.9	75383.9	98.74	PASS	70-125
N026093-001B	SAMP	10	109413.5	108669.5	100.68	PASS	70-125	75655.2	75383.9	100.36	PASS	70-125
CCV1	CCV	1	122438.7	108669.5	112.67	PASS	70-125	85406.1	75383.9	113.29	PASS	70-125
CCB1	CCB	1	113523.3	108669.5	104.47	PASS	70-125	78979.9	75383.9	104.77	PASS	70-125
N026093-001B	SAMP	50	107327.3	108669.5	98.76	PASS	70-125	74707.5	75383.9	99.1	PASS	70-125
N026093-001B-PS	PS	10	103502.2	108669.5	95.24	PASS	70-125	72181.9	75383.9	95.75	PASS	70-125
N026093-001B-MS	MS	10	103904.5	108669.5	95.62	PASS	70-125	72219.5	75383.9	95.8	PASS	70-125
N026093-001B-MSD	MSD	10	104678.1	108669.5	96.33	PASS	70-125	72740.9	75383.9	96.49	PASS	70-125
N026093-002B	SAMP	5	104216.7	108669.5	95.9	PASS	70-125	73376.9	75383.9	97.34	PASS	70-125
N026093-003B	SAMP	5	103398.4	108669.5	95.15	PASS	70-125	73736.1	75383.9	97.81	PASS	70-125
N026114-001B	SAMP	1	96550.6	108669.5	88.85	PASS	70-125	61313.9	75383.9	81.34	PASS	70-125
N026114-001B	SAMP	5	105870.5	108669.5	97.42	PASS	70-125	71330	75383.9	94.62	PASS	70-125
N026114-002B	SAMP	1	114657.9	108669.5	105.51	PASS	70-125	77021.2	75383.9	102.17	PASS	70-125
N026114-002B	SAMP	5	107767.6	108669.5	99.17	PASS	70-125	75851.7	75383.9	100.62	PASS	70-125
CCV2	CCV	1	116255.6	108669.5	106.98	PASS	70-125	81002.8	75383.9	107.45	PASS	70-125
CCB2	CCB	1	107541.2	108669.5	98.96	PASS	70-125	76206.4	75383.9	101.09	PASS	70-125
N026114-003B	SAMP	1	101677.9	108669.5	93.57	PASS	70-125	66649.4	75383.9	88.41	PASS	70-125
N026114-003B	SAMP	5	104718.7	108669.5	96.36	PASS	70-125	72688.9	75383.9	96.42	PASS	70-125
N026114-004B	SAMP	1	111340.7	108669.5	102.46	PASS	70-125	76384.9	75383.9	101.33	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	108146.7	108669.5	99.52	PASS	70-125	75407.1	75383.9	100.03	PASS	70-125
N026114-005B	SAMP	1	114328.4	108669.5	105.21	PASS	70-125	78548.7	75383.9	104.2	PASS	70-125
N026114-006B	SAMP	1	111068.7	108669.5	102.21	PASS	70-125	76485.5	75383.9	101.46	PASS	70-125
N026114-007B	SAMP	1	111171.2	108669.5	102.3	PASS	70-125	76291.8	75383.9	101.2	PASS	70-125
N026114-008B	SAMP	1	107032.9	108669.5	98.49	PASS	70-125	72180.6	75383.9	95.75	PASS	70-125
N026114-008B	SAMP	250	105325.5	108669.5	96.92	PASS	70-125	76011.1	75383.9	100.83	PASS	70-125
N026134-001B	SAMP	1	102053	108669.5	93.91	PASS	70-125	67762.7	75383.9	89.89	PASS	70-125
CCV3	CCV	1	114484.2	108669.5	105.35	PASS	70-125	80016.9	75383.9	106.15	PASS	70-125
CCB3	CCB	1	105695.7	108669.5	97.26	PASS	70-125	74672.9	75383.9	99.057	PASS	70-125
N026134-001B	SAMP	5	96036.9	108669.5	88.38	PASS	70-125	68026.3	75383.9	90.24	PASS	70-125
N026134-002B	SAMP	1	96891.7	108669.5	89.16	PASS	70-125	64326.6	75383.9	85.33	PASS	70-125
N026134-002B	SAMP	5	100894.5	108669.5	92.85	PASS	70-125	68618.9	75383.9	91.026	PASS	70-125
N026134-003B	SAMP	1	101029.7	108669.5	92.97	PASS	70-125	62556.5	75383.9	82.98	PASS	70-125
N026134-003B	SAMP	5	97045.9	108669.5	89.3	PASS	70-125	67117.8	75383.9	89.035	PASS	70-125
N026134-004B	SAMP	1	90800.8	108669.5	83.56	PASS	70-125	55923.9	75383.9	74.19	PASS	70-125
N026134-004B	SAMP	5	97931.5	108669.5	90.12	PASS	70-125	68227.2	75383.9	90.51	PASS	70-125
N026156-001B	SAMP	1	104288.3	108669.5	95.97	PASS	70-125	69617.7	75383.9	92.35	PASS	70-125
N026156-001B	SAMP	5	104071	108669.5	95.77	PASS	70-125	73014.1	75383.9	96.86	PASS	70-125
N026156-002B	SAMP	1	93060	108669.5	85.64	PASS	70-125	59239.9	75383.9	78.58	PASS	70-125
CCV4	CCV	1	114261.8	108669.5	105.15	PASS	70-125	80191.4	75383.9	106.38	PASS	70-125
CCB4	CCB	1	106708.3	108669.5	98.2	PASS	70-125	75748.8	75383.9	100.48	PASS	70-125
N026156-002B	SAMP	5	94655.8	108669.5	87.1	PASS	70-125	65986.8	75383.9	87.53	PASS	70-125
N026156-003B	SAMP	1	92374.8	108669.5	85.005	PASS	70-125	59746.2	75383.9	79.26	PASS	70-125
N026156-003B	SAMP	5	97973.4	108669.5	90.16	PASS	70-125	68021.6	75383.9	90.23	PASS	70-125
N026114-007B	SAMP	1	109267.9	108669.5	100.55	PASS	70-125	75495.4	75383.9	100.15	PASS	70-125
N026156-001B	SAMP	1	103436.3	108669.5	95.18	PASS	70-125	69811.4	75383.9	92.61	PASS	70-125
CCV5	CCV	1	114182.1	108669.5	105.07	PASS	70-125	81458.1	75383.9	108.06	PASS	70-125
CCB5	CCB	1	106189	108669.5	97.72	PASS	70-125	76772.2	75383.9	101.84	PASS	70-125
LLCCV1	CCV2	1	118743.3	108669.5	109.27	PASS	70-125	86262.6	75383.9	114.43	PASS	70-125
ICSA2	ICSA	1	97881.4	108669.5	90.073	PASS	70-125	70191.9	75383.9	93.11	PASS	70-125
ICSAB2	ICSAB	1	101874.4	108669.5	93.75	PASS	70-125	71887.8	75383.9	95.36	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	97228.3	97228.3	100	PASS	70-125	2243050.3	2243050.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	100930.4	97228.3	103.81	PASS	70-125	2469937	2243050.3	110.12	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	98659.8	97228.3	101.47	PASS	70-125	2483146.6	2243050.3	110.7	PASS	70-125
Std3-5/50 ppb	ICAL	1	98939.5	97228.3	101.76	PASS	70-125	2511454.4	2243050.3	111.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	97209.3	97228.3	99.98	PASS	70-125	2474294.3	2243050.3	110.31	PASS	70-125
Std5-20/200 ppb	ICAL	1	94628.7	97228.3	97.33	PASS	70-125	2454264.4	2243050.3	109.42	PASS	70-125
Std6-40/400 ppb	ICAL	1	96625.8	97228.3	99.38	PASS	70-125	2482662.3	2243050.3	110.68	PASS	70-125
Std7-100/1000 ppb	ICAL	1	93800.7	97228.3	96.47	PASS	70-125	2384160	2243050.3	106.29	PASS	70-125
Std8-200/2000 ppb	ICAL	1	91903	97228.3	94.52	PASS	70-125	2381162.9	2243050.3	106.16	PASS	70-125
ICV	ICV	1	86167.9	97228.3	88.62	PASS	70-125	2228240.3	2243050.3	99.34	PASS	70-125
ICB	ICB	1	87460.3	97228.3	89.95	PASS	70-125	2309777.1	2243050.3	102.97	PASS	70-125
LLICV	CCV1	1	80676.4	97228.3	82.98	PASS	70-125	2474165.9	2243050.3	110.3	PASS	70-125
ICSA1	ICSA	1	93276.3	97228.3	95.94	PASS	70-125	2258824.1	2243050.3	100.7	PASS	70-125
ICSAB1	ICSAB	1	83995.5	97228.3	86.39	PASS	70-125	2106118	2243050.3	93.9	PASS	70-125
MB-63964	MBLK	1	94979.2	97228.3	97.69	PASS	70-125	2437198.1	2243050.3	108.66	PASS	70-125
LCS-63964	LCS	1	87657.8	97228.3	90.16	PASS	70-125	2287154.3	2243050.3	101.97	PASS	70-125
N026093-001B	SAMP	1	70381.4	97228.3	72.39	PASS	70-125	1649844.5	2243050.3	73.55	PASS	70-125
N026093-001B	SAMP	5	82467.9	97228.3	84.82	PASS	70-125	1995048	2243050.3	88.94	PASS	70-125
N026093-001B-PS	PS	1	71564.1	97228.3	73.6	PASS	70-125	1725680.7	2243050.3	76.93	PASS	70-125
N026093-001B-MS	MS	1	70416.1	97228.3	72.42	PASS	70-125	1703297.3	2243050.3	75.94	PASS	70-125
N026093-001B-MSD	MSD	1	69236.7	97228.3	71.21	PASS	70-125	1669620.7	2243050.3	74.44	PASS	70-125
N026093-002B	SAMP	1	80149.4	97228.3	82.43	PASS	70-125	1923888.4	2243050.3	85.77	PASS	70-125
N026093-003B	SAMP	1	81299.3	97228.3	83.62	PASS	70-125	1958002.7	2243050.3	87.29	PASS	70-125
N026093-001B	SAMP	10	84272.5	97228.3	86.67	PASS	70-125	2051090.3	2243050.3	91.44	PASS	70-125
CCV1	CCV	1	96456.1	97228.3	99.21	PASS	70-125	2488319.9	2243050.3	110.93	PASS	70-125
CCB1	CCB	1	89993.2	97228.3	92.56	PASS	70-125	2353437	2243050.3	104.92	PASS	70-125
N026093-001B	SAMP	50	84657.1	97228.3	87.07	PASS	70-125	2148135.7	2243050.3	95.77	PASS	70-125
N026093-001B-PS	PS	10	80748.3	97228.3	83.05	PASS	70-125	1991382.2	2243050.3	88.78	PASS	70-125
N026093-001B-MS	MS	10	80485.8	97228.3	82.78	PASS	70-125	2018637.8	2243050.3	90	PASS	70-125
N026093-001B-MSD	MSD	10	79244.1	97228.3	81.5	PASS	70-125	2017297.5	2243050.3	89.94	PASS	70-125
N026093-002B	SAMP	5	81033	97228.3	83.34	PASS	70-125	2041794.2	2243050.3	91.028	PASS	70-125
N026093-003B	SAMP	5	79496.5	97228.3	81.76	PASS	70-125	2025732.5	2243050.3	90.31	PASS	70-125
N026114-001B	SAMP	1	61313.9	97228.3	63.062	NR!	70-125	1525583.2	2243050.3	68.014	NR!	70-125
N026114-001B	SAMP	5	77150.9	97228.3	79.35	PASS	70-125	1912768.3	2243050.3	85.28	PASS	70-125
N026114-002B	SAMP	1	82700.2	97228.3	85.058	PASS	70-125	2046261	2243050.3	91.23	PASS	70-125
N026114-002B	SAMP	5	82577.2	97228.3	84.93	PASS	70-125	2096692.1	2243050.3	93.48	PASS	70-125
CCV2	CCV	1	89554.6	97228.3	92.11	PASS	70-125	2404152.8	2243050.3	107.18	PASS	70-125
CCB2	CCB	1	83822.9	97228.3	86.21	PASS	70-125	2292772	2243050.3	102.22	PASS	70-125
N026114-003B	SAMP	1	68721.8	97228.3	70.68	PASS	70-125	1750106.1	2243050.3	78.023	PASS	70-125
N026114-003B	SAMP	5	77720.4	97228.3	79.94	PASS	70-125	1992650.8	2243050.3	88.84	PASS	70-125
N026114-004B	SAMP	1	83055.2	97228.3	85.42	PASS	70-125	2054912.9	2243050.3	91.61	PASS	70-125

INTERNAL STANDARD: 171012A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026114-004B	SAMP	5	83654.7	97228.3	86.039	PASS	70-125	2107421.9	2243050.3	93.95	PASS	70-125
N026114-005B	SAMP	1	85978.1	97228.3	88.43	PASS	70-125	2166242.6	2243050.3	96.58	PASS	70-125
N026114-006B	SAMP	1	84559.3	97228.3	86.97	PASS	70-125	2103888.9	2243050.3	93.8	PASS	70-125
N026114-007B	SAMP	1	87153	97228.3	89.64	PASS	70-125	2114808.1	2243050.3	94.28	PASS	70-125
N026114-008B	SAMP	1	79709.3	97228.3	81.98	PASS	70-125	1998880.9	2243050.3	89.11	PASS	70-125
N026114-008B	SAMP	250	83394.5	97228.3	85.77	PASS	70-125	2235692.6	2243050.3	99.67	PASS	70-125
N026134-001B	SAMP	1	69764.3	97228.3	71.75	PASS	70-125	1795778.6	2243050.3	80.06	PASS	70-125
CCV3	CCV	1	86586.8	97228.3	89.055	PASS	70-125	2386721.2	2243050.3	106.41	PASS	70-125
CCB3	CCB	1	83164.8	97228.3	85.54	PASS	70-125	2265081.4	2243050.3	100.98	PASS	70-125
N026134-001B	SAMP	5	74564.5	97228.3	76.69	PASS	70-125	1908735.6	2243050.3	85.096	PASS	70-125
N026134-002B	SAMP	1	64618.9	97228.3	66.46	NR!	70-125	1664536	2243050.3	74.21	PASS	70-125
N026134-002B	SAMP	5	71691	97228.3	73.73	PASS	70-125	1967631.2	2243050.3	87.72	PASS	70-125
N026134-003B	SAMP	1	62123.1	97228.3	63.89	NR!	70-125	1605688.4	2243050.3	71.59	PASS	70-125
N026134-003B	SAMP	5	70929.3	97228.3	72.95	PASS	70-125	1867537.2	2243050.3	83.26	PASS	70-125
N026134-004B	SAMP	1	56047.3	97228.3	57.65	NR!	70-125	1434636.9	2243050.3	63.96	NR!	70-125
N026134-004B	SAMP	5	68138	97228.3	70.08	PASS	70-125	1850107.2	2243050.3	82.48	PASS	70-125
N026156-001B	SAMP	1	72393.8	97228.3	74.46	PASS	70-125	1858193.3	2243050.3	82.84	PASS	70-125
N026156-001B	SAMP	5	78373.3	97228.3	80.61	PASS	70-125	2026281.2	2243050.3	90.34	PASS	70-125
N026156-002B	SAMP	1	59376.6	97228.3	61.069	NR!	70-125	1504872.3	2243050.3	67.09	NR!	70-125
CCV4	CCV	1	85204.2	97228.3	87.63	PASS	70-125	2428459.4	2243050.3	108.27	PASS	70-125
CCB4	CCB	1	80957.4	97228.3	83.27	PASS	70-125	2286561	2243050.3	101.94	PASS	70-125
N026156-002B	SAMP	5	71246.4	97228.3	73.28	PASS	70-125	1823694.6	2243050.3	81.3	PASS	70-125
N026156-003B	SAMP	1	58490.5	97228.3	60.16	NR!	70-125	1529280.9	2243050.3	68.18	NR!	70-125
N026156-003B	SAMP	5	70812.3	97228.3	72.83	PASS	70-125	1857493.7	2243050.3	82.81	PASS	70-125
N026114-007B	SAMP	1	81942.1	97228.3	84.28	PASS	70-125	2095113.6	2243050.3	93.4	PASS	70-125
N026156-001B	SAMP	1	72040.1	97228.3	74.094	PASS	70-125	1851139.5	2243050.3	82.53	PASS	70-125
CCV5	CCV	1	89812.7	97228.3	92.37	PASS	70-125	2413691.5	2243050.3	107.61	PASS	70-125
CCB5	CCB	1	83180.4	97228.3	85.55	PASS	70-125	2295865.5	2243050.3	102.35	PASS	70-125
LLCCV1	CCV2	1	95088.2	97228.3	97.8	PASS	70-125	2615823.9	2243050.3	116.62	PASS	70-125
ICSA2	ICSA	1	71743.9	97228.3	73.79	PASS	70-125	2048243.3	2243050.3	91.32	PASS	70-125
ICSAB2	ICSAB	1	76755.7	97228.3	78.94	PASS	70-125	1999888	2243050.3	89.16	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026156
Test Method: EPA 6020
Analysis Date: 10/12/2017

Matrix: Groundwater
Batch No.: 63964

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr and Se. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026093-001B DT 5X	Arsenic	ug/L	4.399552	PASS	4.206121	4.60%	10
N026093-001B DT 5X	Chromium	ug/L	0	NA	0		10
N026093-001B DT 50X	Manganese	ug/L	998.3813	PASS	954.6786	4.58%	10
N026093-001B DT 5X	Molybdenum	ug/L	64.51221	PASS	61.87842	4.26%	10
N026093-001B DT 5X	Selenium	ug/L	0.16919	NA	0.096195	75.88%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.568	0.10	10.00	4.206	93.6	80	120				
Molybdenum	71.753	0.50	10.00	61.88	98.7	80	120				
Selenium	9.616	0.50	10.00	0.09619	95.2	80	120				

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118492**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1082.468	5.0	100.0	954.7	128	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026156
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **N026093-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118491**
Client ID: **ZZZZZZ**	Batch ID: **63964**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/12/2017**	SeqNo: **2789560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.670	1.0	10.00	0	86.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

October 17, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026226

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 02, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcaw for

Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N026226-001 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved

Dilution was necessary on Selenium for sample N026226-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *17-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026226
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026226-001A	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-001B	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-001C	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-001D	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-002A	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-002B	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-002C	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-002D	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-003A	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-003B	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-003C	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-003D	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-004A	MW-709-Q317	Groundwater	10/2/2017 3:08:00 PM	10/2/2017	10/17/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171003D**	QC Batch: **R118294**			PrepDate			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	10/3/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171003D**	QC Batch: **R118294**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	10/3/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171003D**	QC Batch: **R118294**			PrepDate			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	10/3/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026226-003DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118294**
Client ID:	**ZZZZZZ**	Batch ID: **R118294**	TestNo: **EPA 120.1**		Analysis Date: **10/3/2017**	SeqNo: **2780492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18960.000	0.10						18990	0.158	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A** QC Batch: **R118282**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	10/3/2017 05:36 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171004A** QC Batch: **64024**				PrepDate	**10/4/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/4/2017 06:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A** QC Batch: **R118282**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	15	0.17	1.0		µg/L	5	10/3/2017 03:29 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171004A** QC Batch: **64024**				PrepDate	**10/4/2017**		Analyst: **CEI**
Chromium	13	0.019	1.0		µg/L	1	10/4/2017 07:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A** QC Batch: **R118282**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	7.9	0.17	1.0		µg/L	5	10/3/2017 04:07 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171016A** QC Batch: **64024**				PrepDate	**10/4/2017**		Analyst: **CEI**
Chromium	7.2	0.019	1.0		µg/L	1	10/16/2017 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-709-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A**	QC Batch: **R118282**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/3/2017 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R118282	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	PBW	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780360

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R118282	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	LCSW	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780361

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.030	0.20	5.000	0	101	90	110				

Sample ID	N026225-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780366

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.041	0.20	1.000	0	104	90	110				

Sample ID	N026225-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780367

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.364	0.20	1.000	0.3129	105	90	110				

Sample ID	N026225-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780368

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.496	0.20	1.000	1.550	94.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026225-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282		
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780371		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110	1.041	0.800	20			

Sample ID	N026225-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282		
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780372		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	2.214	0.20						2.203	0.525	20			

Sample ID	N026225-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282		
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780374		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.476	0.20	1.000	0.4655	101	90	110						

Sample ID	N026225-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282		
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780376		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.565	0.20	1.000	0.5119	105	90	110						

Sample ID	N026225-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282		
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780378		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	1.961	0.20	1.000	0.9668	99.4	90	110						

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026226-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780388

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID	N026226-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780390

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	39.101	1.0	25.00	14.63	97.9	90	110				

Sample ID	N026226-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780395

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.637	1.0	5.000	7.924	94.3	90	110				

Sample ID	N026225-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780396

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.246	0.20	1.000	2.203	104	90	110				

Sample ID	N026226-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118282
Client ID:	ZZZZZZ	Batch ID:	R118282	TestNo:	EPA 218.6			Analysis Date:	10/3/2017	SeqNo:	2780400

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	1.0	5.000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-64024**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **PBW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.077	1.0									

Sample ID **LCS-64024**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **LCSW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.241	1.0	10.00	0	102	85	115				

Sample ID **N026224-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.677	1.0	10.00	0.6070	90.7	75	125				

Sample ID **N026224-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.633	1.0	10.00	0.6070	90.3	75	125	9.677	0.465	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	0.073	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118390	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	PBW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118390	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	LCSW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID	N026134-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03340	0	20	

Sample ID	N026134-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785154

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.735	0.25	2.500	3.209	101	75	125				

Sample ID	N026134-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785155

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.759	0.25	2.500	3.209	102	75	125	5.735	0.418	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171004E**	QC Batch: **64024**			PrepDate	**10/4/2017**	Analyst: **CEI**	
Arsenic	1.4	0.025	0.10		µg/L	1	10/4/2017 06:59 PM
Manganese	230	0.28	2.5		µg/L	5	10/16/2017 01:01 PM
Molybdenum	20	0.039	0.50		µg/L	1	10/4/2017 06:59 PM
Selenium	ND	0.028	0.50		µg/L	1	10/16/2017 12:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171004E**	QC Batch: **64024**			PrepDate	**10/4/2017**		Analyst: **CEI**
Arsenic	5.4	0.025	0.10		µg/L	1	10/4/2017 07:16 PM
Manganese	7.6	0.056	0.50		µg/L	1	10/4/2017 07:16 PM
Molybdenum	79	0.039	0.50		µg/L	1	10/4/2017 07:16 PM
Selenium	ND	0.028	0.50		µg/L	1	10/16/2017 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171004E**	QC Batch: **64024**			PrepDate	**10/4/2017**	Analyst: **CEI**	
Molybdenum	160	0.039	0.50		µg/L	1	10/4/2017 07:21 PM
Selenium	ND	0.14	2.5		µg/L	5	10/16/2017 01:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-64024**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **PBW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **LCS-64024**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **LCSW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.028	0.10	10.00	0	100	85	115				
Manganese	101.009	0.50	100.0	0	101	85	115				
Molybdenum	9.945	0.50	10.00	0	99.5	85	115				

Sample ID **N026224-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.255	0.10	10.00	1.685	95.7	75	125				
Manganese	102.701	0.50	100.0	12.27	90.4	75	125				
Molybdenum	12.212	0.50	10.00	1.889	103	75	125				

Sample ID **N026224-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.283	0.10	10.00	1.685	96.0	75	125	11.25	0.246	20	
Manganese	101.648	0.50	100.0	12.27	89.4	75	125	102.7	1.03	20	
Molybdenum	12.017	0.50	10.00	1.889	101	75	125	12.21	1.61	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-64024	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	PBW	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794457

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-64024	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	LCSW	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794458

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.122	0.50	10.00	0	101	85	115				

Sample ID	N026224-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794462

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.400	0.50	10.00	0.3261	90.7	75	125				

Sample ID	N026224-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794463

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.250	0.50	10.00	0.3261	89.2	75	125	9.400	1.61	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Ted Dillard		Phone: 949-727-1400, ext 200	Fax:
Title: Sample Tech	Phone: 916-786-3302 Fax:		
Signature: Date: 10.2.17	Sampled By: Kevin Thompson		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - GMP	Signature: Date: 10.2.17		
Project Number: RC000753.0801			

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State: Ca		Sample Temp: 1.8		

Courier: ASSET
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	X Dissolved Arsenic SW6020	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026226- 01	MW-34-100-Q317	10.2.17	1240		X		X	X	X	X	X							X	E	4	P	BN	
2	-02	mw-44-115-Q317		1333		X		X	X	X	X	X							X	E	4	P	BN	
3	-03	mw-46-175-Q317		1450		X			X	X	X	X								E	4	P	BN	
4	-04	MW-709-Q317	↓	1500		X														E	1	P	BN	
5																								
6																								
7																								
8																								
9																								
10																								

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Kevin Thompson	10/2/17 1535	MBC/KHN	10/2/17 1612
	10/2/17 @2205		10/2/17 @2205

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 10/2/2017 Workorder: N026226

Rep sample Temp (Deg C): 1.8 IR Gun ID: 2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: MBC 10/5/2017

Reviewed By: 10/11/2017

Sonny Lorenzo

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, October 04, 2017 9:30 AM
To: 'Madsen, Laura'; 'Clift, Gary'; 'Fernando Rivera'; 'Yoandra Rodriguez'
Cc: 'Serna, Erica'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'
Subject: RE: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Will do Laura.

Sonny and Dea – Please process.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:27 AM
To: Clift, Gary; Marlon B. Cartin; 'Fernando Rivera'; 'Yoandra Rodriguez'
Cc: Madsen, Laura; Serna, Erica
Subject: RE: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Marlon,
Please add specific conductance to the three samples in this SDG. It was missed on the COC.

Thanks,
Laura

From: Clift, Gary
Sent: Wednesday, October 4, 2017 10:44 AM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Subject: Fwd: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Laura,

Can you answer this question.

Thanks,
Gary Clift

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

-------- Original message --------

From: "Marlon B. Cartin" <marlon@assetlaboratories.com>
Date: 10/4/17 8:31 AM (GMT-08:00)
To: "Clift, Gary" <Gary.Clift@arcadis.com>
Cc: jmahn@blainetech.com
Subject: FW: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Garry,

Please advise on the issue below. Attached is the COC.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 I F: 702.307.2691 I M: 702.439.0421

-----Original Message-----
From: Yoandra Rodriguez [mailto:yoandra@assetlaboratories.com]
Sent: Tuesday, October 03, 2017 10:43 AM
To: 'Marlon B. Cartin'; 'Sonny. Lorenzo'; 'Andreafe. Gallardo'; krydelle.ines@assetlaboratoriesph.com
Subject: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Marlon,

Received extra unpreserved 32 oz poly for samples 1-3 labeled "120.1", but there's no request for specific conductance on the COC.

Please advise.

Thanks,

--
Yoandra Rodriguez
Sample Control Officer
Asset Laboratories

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ASSET Laboratories

WORK ORDER Summary

04-Oct-17

WorkOrder: N026226

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 10/2/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026226-001A	MW-34-100-Q317	10/2/2017 12:40:00 PM	10/16/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-001B			10/16/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026226-001C			10/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	LSR
N026226-001D			10/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026226-002A	MW-44-115-Q317	10/2/2017 1:33:00 PM	10/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-002B			10/16/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026226-002C			10/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	LSR
N026226-002D			10/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026226-003A	MW-46-175-Q317	10/2/2017 2:50:00 PM	10/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-003B			10/16/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026226-003C			10/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	LSR
N026226-003D			10/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026226-004A	MW-709-Q317	10/2/2017 3:08:00 PM	10/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-005A	FOLDER	10/16/2017	10/16/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/16/2017		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories

WORK ORDER Summary

04-Oct-17

WorkOrder: N026226

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 10/2/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026226-005A	FOLDER	10/16/2017	10/16/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N026226

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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October 17, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026226

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 02, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcano for

Puri Romualdo
Laboratory Director

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CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026226

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N026226-001 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved

Dilution was necessary on Selenium for sample N026226-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: *17-Oct-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026226
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026226-001A	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-001B	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-001C	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-001D	MW-34-100-Q317	Groundwater	10/2/2017 12:40:00 PM	10/2/2017	10/17/2017
N026226-002A	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-002B	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-002C	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-002D	MW-44-115-Q317	Groundwater	10/2/2017 1:33:00 PM	10/2/2017	10/17/2017
N026226-003A	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-003B	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-003C	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-003D	MW-46-175-Q317	Groundwater	10/2/2017 2:50:00 PM	10/2/2017	10/17/2017
N026226-004A	MW-709-Q317	Groundwater	10/2/2017 3:08:00 PM	10/2/2017	10/17/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171003D**	QC Batch: **R118294**			PrepDate			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	10/3/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171003D**	QC Batch: **R118294**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	10/3/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171003D**	QC Batch: **R118294**			PrepDate			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	10/3/2017 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N026226-003DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**118294**
Client ID:	**ZZZZZZ**	Batch ID:	**R118294**	TestNo:	**EPA 120.1**			Analysis Date:	**10/3/2017**	SeqNo:	**2780492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18960.000	0.10						18990	0.158	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_171003A** QC Batch: **R118282**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	10/3/2017 05:36 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_171004A** QC Batch: **64024**				PrepDate	**10/4/2017**		Analyst: **CEI**
Chromium	ND	0.019	1.0		µg/L	1	10/4/2017 06:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A** QC Batch: **R118282**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	15	0.17	1.0		µg/L	5	10/3/2017 03:29 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_171004A** QC Batch: **64024**				PrepDate	**10/4/2017**		Analyst: **CEI**
Chromium	13	0.019	1.0		µg/L	1	10/4/2017 07:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026226
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026226-003

Client Sample ID: MW-46-175-Q317
Collection Date: 10/2/2017 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A** QC Batch: **R118282**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	7.9	0.17	1.0		µg/L	5	10/3/2017 04:07 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_171016A** QC Batch: **64024**				PrepDate	**10/4/2017**		Analyst: **CEI**
Chromium	7.2	0.019	1.0		µg/L	1	10/16/2017 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-709-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 3:08:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171003A**	QC Batch: **R118282**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/3/2017 03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118282**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **PBW**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118282**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **LCSW**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.030	0.20	5.000	0	101	90	110				

Sample ID **N026225-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.041	0.20	1.000	0	104	90	110				

Sample ID **N026225-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.364	0.20	1.000	0.3129	105	90	110				

Sample ID **N026225-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.496	0.20	1.000	1.550	94.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026225-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110	1.041	0.800	20	

Sample ID **N026225-002ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.214	0.20						2.203	0.525	20	

Sample ID **N026225-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.476	0.20	1.000	0.4655	101	90	110				

Sample ID **N026225-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.565	0.20	1.000	0.5119	105	90	110				

Sample ID **N026225-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.961	0.20	1.000	0.9668	99.4	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N026226-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **118282**
Client ID: **ZZZZZZ** Batch ID: **R118282** TestNo: **EPA 218.6** Analysis Date: **10/3/2017** SeqNo: **2780388**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID **N026226-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **118282**
Client ID: **ZZZZZZ** Batch ID: **R118282** TestNo: **EPA 218.6** Analysis Date: **10/3/2017** SeqNo: **2780390**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	39.101	1.0	25.00	14.63	97.9	90	110				

Sample ID **N026226-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **118282**
Client ID: **ZZZZZZ** Batch ID: **R118282** TestNo: **EPA 218.6** Analysis Date: **10/3/2017** SeqNo: **2780395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.637	1.0	5.000	7.924	94.3	90	110				

Sample ID **N026225-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **118282**
Client ID: **ZZZZZZ** Batch ID: **R118282** TestNo: **EPA 218.6** Analysis Date: **10/3/2017** SeqNo: **2780396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.246	0.20	1.000	2.203	104	90	110				

Sample ID **N026226-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **118282**
Client ID: **ZZZZZZ** Batch ID: **R118282** TestNo: **EPA 218.6** Analysis Date: **10/3/2017** SeqNo: **2780400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	1.0	5.000	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-64024**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **PBW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.077	1.0									

Sample ID **LCS-64024**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **LCSW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.241	1.0	10.00	0	102	85	115				

Sample ID **N026224-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.677	1.0	10.00	0.6070	90.7	75	125				

Sample ID **N026224-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2781587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.633	1.0	10.00	0.6070	90.3	75	125	9.677	0.465	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 1:33:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	0.073	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_171007A**	QC Batch: **R118390**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.022	0.050		mg/L	1	10/7/2017

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R118390	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	PBW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R118390	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	LCSW	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID	N026134-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0.03340	0	20	

Sample ID	N026134-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785154

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.735	0.25	2.500	3.209	101	75	125				

Sample ID	N026134-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	118390
Client ID:	ZZZZZZ	Batch ID:	R118390	TestNo:	SM4500-NO3			Analysis Date:	10/7/2017	SeqNo:	2785155

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.759	0.25	2.500	3.209	102	75	125	5.735	0.418	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_171004E**	QC Batch: **64024**			PrepDate	**10/4/2017**		Analyst: **CEI**
Arsenic	1.4	0.025	0.10		µg/L	1	10/4/2017 06:59 PM
Manganese	230	0.28	2.5		µg/L	5	10/16/2017 01:01 PM
Molybdenum	20	0.039	0.50		µg/L	1	10/4/2017 06:59 PM
Selenium	ND	0.028	0.50		µg/L	1	10/16/2017 12:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026226
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026226-002

Client Sample ID: MW-44-115-Q317
Collection Date: 10/2/2017 1:33:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171004E**	QC Batch: **64024**			PrepDate	**10/4/2017**		Analyst: **CEI**
Arsenic	5.4	0.025	0.10		µg/L	1	10/4/2017 07:16 PM
Manganese	7.6	0.056	0.50		µg/L	1	10/4/2017 07:16 PM
Molybdenum	79	0.039	0.50		µg/L	1	10/4/2017 07:16 PM
Selenium	ND	0.028	0.50		µg/L	1	10/16/2017 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q317
Lab Order:	N026226	**Collection Date:**	10/2/2017 2:50:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026226-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171004E**	QC Batch: **64024**			PrepDate	**10/4/2017**	Analyst: **CEI**	
Molybdenum	160	0.039	0.50		µg/L	1	10/4/2017 07:21 PM
Selenium	ND	0.14	2.5		µg/L	5	10/16/2017 01:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-64024**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **PBW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID **LCS-64024**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **LCSW**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.028	0.10	10.00	0	100	85	115				
Manganese	101.009	0.50	100.0	0	101	85	115				
Molybdenum	9.945	0.50	10.00	0	99.5	85	115				

Sample ID **N026224-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.255	0.10	10.00	1.685	95.7	75	125				
Manganese	102.701	0.50	100.0	12.27	90.4	75	125				
Molybdenum	12.212	0.50	10.00	1.889	103	75	125				

Sample ID **N026224-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/4/2017**	RunNo: **118554**
Client ID: **ZZZZZZ**	Batch ID: **64024**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/4/2017**	SeqNo: **2792927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.283	0.10	10.00	1.685	96.0	75	125	11.25	0.246	20	
Manganese	101.648	0.50	100.0	12.27	89.4	75	125	102.7	1.03	20	
Molybdenum	12.017	0.50	10.00	1.889	101	75	125	12.21	1.61	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-64024	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	PBW	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794457

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-64024	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	LCSW	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794458

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.122	0.50	10.00	0	101	85	115				

Sample ID	N026224-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794462

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.400	0.50	10.00	0.3261	90.7	75	125				

Sample ID	N026224-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	10/4/2017	RunNo:	118576
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794463

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.250	0.50	10.00	0.3261	89.2	75	125	9.400	1.61	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Ted Dillard		Phone: 949-727-1400, ext 200	Fax:
Title: Sample Tech	Phone: 916-786-3302 Fax:		
Signature: Date: 10.2.17	Sampled By: Kevin Thompson		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - GMP	Signature: Date: 10.2.17		
Project Number: RC000753.0801			

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State: Ca	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present		
5. IR number	2	
6. Method of Cooling: ICE		
Sample Temp: 1.8		

Courier: ASSET
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	X Dissolved Arsenic SW6020	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026226- 01	MW-34-100-Q317	10.2.17	1240		X		X	X	X	X	X							X		E	4	P	BN	
2	-02	mw-44-115-Q317		1333		X		X	X	X	X	X							X		E	4	P	BN	
3	-03	mw-46-175-Q317		1450		X			X	X	X	X									E	4	P	BN	
4	-04	MW-709-Q317	↓	1500		X															E	1	P	BN	
5																									
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Kevin Thompson	10/2/17 1535	MBC/KHN	10/2/17 1612
	10/2/17 @ 2205		10/2/17 @ 2205

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 10/2/2017 Workorder: N026226

Rep sample Temp (Deg C): 1.8 IR Gun ID: 2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: MBC 10/5/2017 Reviewed By: 10/11/2017

Sonny Lorenzo

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, October 04, 2017 9:30 AM
To: 'Madsen, Laura'; 'Clift, Gary'; 'Fernando Rivera'; 'Yoandra Rodriguez'
Cc: 'Serna, Erica'; 'Sonny Lorenzo'; 'Andreafe. Gallardo'
Subject: RE: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Will do Laura.

Sonny and Dea – Please process.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

From: Madsen, Laura [mailto:Laura.Madsen@arcadis.com]
Sent: Wednesday, October 04, 2017 9:27 AM
To: Clift, Gary; Marlon B. Cartin; 'Fernando Rivera'; 'Yoandra Rodriguez'
Cc: Madsen, Laura; Serna, Erica
Subject: RE: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Marlon,
Please add specific conductance to the three samples in this SDG. It was missed on the COC.

Thanks,
Laura

From: Clift, Gary
Sent: Wednesday, October 4, 2017 10:44 AM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Subject: Fwd: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Laura,

Can you answer this question.

Thanks,
Gary Clift

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

-------- Original message --------

From: "Marlon B. Cartin" <marlon@assetlaboratories.com>
Date: 10/4/17 8:31 AM (GMT-08:00)
To: "Clift, Gary" <Gary.Clift@arcadis.com>
Cc: jmahn@blainetech.com
Subject: FW: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Garry,

Please advise on the issue below. Attached is the COC.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 I F: 702.307.2691 I M: 702.439.0421

-----Original Message-----
From: Yoandra Rodriguez [mailto:yoandra@assetlaboratories.com]
Sent: Tuesday, October 03, 2017 10:43 AM
To: 'Marlon B. Cartin'; 'Sonny. Lorenzo'; 'Andreafe. Gallardo'; krydelle.ines@assetlaboratoriesph.com
Subject: PG&E Topock - GMP, RC000753.0801 (Asset Labs No. N026226)

Hi Marlon,

Received extra unpreserved 32 oz poly for samples 1-3 labeled "120.1", but there's no request for specific conductance on the COC.

Please advise.

Thanks,

--
Yoandra Rodriguez
Sample Control Officer
Asset Laboratories

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ASSET Laboratories

WORK ORDER Summary

04-Oct-17

WorkOrder: N026226

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 10/2/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026226-001A	MW-34-100-Q317	10/2/2017 12:40:00 PM	10/16/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-001B			10/16/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026226-001C			10/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	LSR
N026226-001D			10/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026226-002A	MW-44-115-Q317	10/2/2017 1:33:00 PM	10/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-002B			10/16/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026226-002C			10/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	LSR
N026226-002D			10/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026226-003A	MW-46-175-Q317	10/2/2017 2:50:00 PM	10/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-003B			10/16/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			10/16/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026226-003C			10/16/2017		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	LSR
N026226-003D			10/16/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N026226-004A	MW-709-Q317	10/2/2017 3:08:00 PM	10/16/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026226-005A	FOLDER	10/16/2017	10/16/2017		EDD	RWQCB	☐	☐	☐	LAB
			10/16/2017		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories

WORK ORDER Summary

04-Oct-17

WorkOrder: N026226

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 10/2/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026226-005A	FOLDER	10/16/2017	10/16/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: **N026226**

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118294 **Analyst:** LSR

ASSET #: N026226 **Date Analyzed:** 10/3/2017

Method: EPA 120.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 10/6/2017

2nd Level Reviewer: 10/16/2017 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 9/29/17 1345
Analyst: LBR

	Standard	Std ID	Reading	Comments
	9.25 µS/cm	CINV-170620B	9.48 µS/cm @ 22.5°C	% Rec: (90-110%)
	1410	170822C	1447 @ 22.5°C	
	9976	170615H	9920 @ 22.6°C	
	99672	170822E	99400 @ 22.6°C	

	Sample ID	Matrix	Reading	Comments
1	ND26191-001D	H2O	41500 @ 21.2°C	
2	2D		40400 @ 20.9°C	
3	3D		27800 @ 21.7°C	
4	4D		28200 @ 21.8°C	
5	5D		27500 @ 21.8°C	
6	6D		28100 @ 21.5°C	
7	7D		41600 @ 21.6°C	
8	8D		42900 @ 21.4°C	
9	8D DUP		43000 @ 21.9°C	
10	1413 µS/cm	CINV-170615G	1472 @ 25.1°C	
Dup	10000	170125E	10350 @ 25.4°C	Accept: 10% water, 20% soil
Std Chk:	99672	170831B	10130 @ 25.5°C	% Rec: (90-110%)

Date: 10/3/17 1050
Analyst: LBR

	Standard	Std ID	Reading	Comments
	9.25 µS/cm	CINV-170620B	9.55 µS/cm @ 18.3°C	% Rec: (90-110%)
	1410	170822C	1422 @ 18.4°C	
	9976	170615H	9940 @ 18.4°C	
	99672	170822E	100310 @ 18.4°C	

	Sample ID	Matrix	Reading	Comments
1	ND26226-001D	H2O	10400 @ 20.3°C	
2	2D		7210 @ 20.5°C	
3	3D		18990 @ 19.9°C	
4	3D DUP		18960 @ 19.5°C	
5				
6				Julia Ramit 10/6/2017
7				
8	1413 µS/cm	CINV-170615G	1429 @ 18.7°C	
9	10000	170125E	10180 @ 18.7°C	
10	99672	170831B	100700 @ 18.6°C	
Dup				Accept: 10% water, 20% soil
Std Chk:				% Rec: (90-110%)

Logbook # 5

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R118282
ASSET #: N026226

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 10/3/2017

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)	X			X		
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X	X		X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?	X		X	X		X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments: **and -003A**
Dilution was necessary for N026226-001A due to possible matrix interference.
~~N026226-003A (218.6) = 7.9 ppb ; N026226-003B (6020) = 6.0 ppb~~
~~MS confirmation performed; recovery within criteria.~~

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba Date: 10/9/2017

2nd Level Reviewer: 10/9/2017 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N026226-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 2.9252 * 5$$

$$Cr^{+6}, \mu g/L = 14.63$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 15}$$

rba 10/9/2017

ANALYSIS RUN LOG

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 171003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	BLANK	BLANK	1	Hexavalent Chromium	10/03/17 9:31 AM	Not Reported
12	BLANK	BLANK	1	Hexavalent Chromium	10/03/17 9:42 AM	Not Reported
13	CCV-1	CCV	1	Hexavalent Chromium	10/03/17 9:51 AM	Reported
14	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/17 10:00 AM	Reported
15	CCB-1	CCB	1	Hexavalent Chromium	10/03/17 10:10 AM	Reported
16	MB-R118282	MBLK	1	Hexavalent Chromium	10/03/17 10:19 AM	Reported
17	LCS-R118282	LCS	1	Hexavalent Chromium	10/03/17 10:29 AM	Reported
18	N026225-001A	SAMP	1	Hexavalent Chromium	10/03/17 10:43 AM	Reported
19	N026225-002A	SAMP	1	Hexavalent Chromium	10/03/17 10:54 AM	Reported
20	N026225-003A	SAMP	1	Hexavalent Chromium	10/03/17 11:04 AM	Reported
21	N026225-004A	SAMP	1	Hexavalent Chromium	10/03/17 11:13 AM	Reported
22	N026225-001AMS	MS	1	Hexavalent Chromium	10/03/17 11:23 AM	Reported
23	N026225-002AMS	MS	1	Hexavalent Chromium	10/03/17 11:32 AM	Not Reported
24	N026225-003AMS	MS	1	Hexavalent Chromium	10/03/17 11:42 AM	Reported
25	N026225-004AMS	MS	1	Hexavalent Chromium	10/03/17 11:51 AM	Reported
26	CCV-2	CCV1	1	Hexavalent Chromium	10/03/17 12:01 PM	Reported
27	CCB-2	CCB	1	Hexavalent Chromium	10/03/17 12:10 PM	Reported
28	N026225-001AMSD	MSD	1	Hexavalent Chromium	10/03/17 12:20 PM	Reported
29	N026225-002ADUP	DUP	1	Hexavalent Chromium	10/03/17 12:29 PM	Reported
30	N026225-005A	SAMP	1	Hexavalent Chromium	10/03/17 12:39 PM	Reported
31	N026225-005AMS	MS	1	Hexavalent Chromium	10/03/17 12:48 PM	Reported
32	N026225-006A	SAMP	1	Hexavalent Chromium	10/03/17 12:57 PM	Reported
33	N026225-006AMS	MS	1	Hexavalent Chromium	10/03/17 1:07 PM	Reported
34	N026225-007A	SAMP	1	Hexavalent Chromium	10/03/17 1:16 PM	Reported
35	N026225-007AMS	MS	1	Hexavalent Chromium	10/03/17 1:26 PM	Reported
36	N026222-001A	SAMP	1	Hexavalent Chromium	10/03/17 1:35 PM	Reported
37	N026222-002A	SAMP	1	Hexavalent Chromium	10/03/17 1:45 PM	Not Reported
38	CCV-3	CCV	1	Hexavalent Chromium	10/03/17 1:54 PM	Reported
39	CCB-3	CCB	1	Hexavalent Chromium	10/03/17 2:04 PM	Reported
40	N026222-003A	SAMP	1	Hexavalent Chromium	10/03/17 2:13 PM	Reported
41	N026222-004A	SAMP	1	Hexavalent Chromium	10/03/17 2:23 PM	Reported
42	N026222-005A	SAMP	1	Hexavalent Chromium	10/03/17 2:32 PM	Reported

INJECTION LOG: 171003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026222-006A	SAMP	1	Hexavalent Chromium	10/03/17 2:42 PM	Reported
44	N026222-002A	SAMP	5	Hexavalent Chromium	10/03/17 2:51 PM	Reported
45	N026226-004A	SAMP	1	Hexavalent Chromium	10/03/17 3:00 PM	Reported
46	N026226-004AMS	MS	1	Hexavalent Chromium	10/03/17 3:10 PM	Reported
47	N026226-001A	SAMP	200	Hexavalent Chromium	10/03/17 3:19 PM	Not Reported
48	N026226-002A	SAMP	5	Hexavalent Chromium	10/03/17 3:29 PM	Reported
49	N026226-002AMS	MS	5	Hexavalent Chromium	10/03/17 3:38 PM	Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	10/03/17 3:48 PM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	10/03/17 3:57 PM	Reported
52	N026226-003A	SAMP	5	Hexavalent Chromium	10/03/17 4:07 PM	Reported
53	N026226-003AMS	MS	5	Hexavalent Chromium	10/03/17 4:19 PM	Not Reported
54	N026225-004AMS	MS	1	Hexavalent Chromium	10/03/17 4:28 PM	Not Reported
55	N026226-001A	SAMP	1	Hexavalent Chromium	10/03/17 4:37 PM	Not Reported
56	N026226-003A	SAMP	1	Hexavalent Chromium	10/03/17 4:47 PM	Not Reported
57	N026226-003AMS	MS	1	Hexavalent Chromium	10/03/17 4:56 PM	Not Reported
58	N026226-003AMS	MS	5	Hexavalent Chromium	10/03/17 5:06 PM	Not Reported
59	N026225-002AMS	MS	1	Hexavalent Chromium	10/03/17 5:15 PM	Reported
60	N026226-001AMS	MS	1	Hexavalent Chromium	10/03/17 5:25 PM	Not Reported
61	N026226-001A	SAMP	5	Hexavalent Chromium	10/03/17 5:36 PM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	10/03/17 5:47 PM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	10/03/17 5:57 PM	Reported
64	N026226-001AMS	MS	5	Hexavalent Chromium	10/03/17 6:06 PM	Reported
65	LCS-R118283	LCS	1	Hexavalent Chromium	10/03/17 6:16 PM	Reported
66	MB-R118283	MBLK	1	Hexavalent Chromium	10/03/17 6:25 PM	Reported
67	N026224-003A	SAMP	1	Hexavalent Chromium	10/03/17 6:35 PM	Reported
68	N026224-003AMS	MS	1	Hexavalent Chromium	10/03/17 6:44 PM	Reported
69	N026224-003AMSD	MSD	1	Hexavalent Chromium	10/03/17 6:54 PM	Reported
70	N026224-004A	SAMP	1	Hexavalent Chromium	10/03/17 7:03 PM	Reported
71	N026224-004ADUP	DUP	1	Hexavalent Chromium	10/03/17 7:13 PM	Reported
72	N026224-001A	SAMP	1	Hexavalent Chromium	10/03/17 7:22 PM	Reported
73	N026224-002A	SAMP	1	Hexavalent Chromium	10/03/17 7:32 PM	Reported
74	CCV-6	CCV1	1	Hexavalent Chromium	10/03/17 7:41 PM	Reported
75	CCB-6	CCB	1	Hexavalent Chromium	10/03/17 7:50 PM	Reported
76	N026224-005A	SAMP	1	Hexavalent Chromium	10/03/17 8:00 PM	Reported
77	N026224-006A	SAMP	1	Hexavalent Chromium	10/03/17 8:09 PM	Reported
78	N026224-007A	SAMP	1	Hexavalent Chromium	10/03/17 8:19 PM	Reported
79	N026224-008A	SAMP	1	Hexavalent Chromium	10/03/17 8:28 PM	Reported
80	N026224-010A	SAMP	1	Hexavalent Chromium	10/03/17 8:38 PM	Reported
81	N026224-009A	SAMP	1	Hexavalent Chromium	10/03/17 8:47 PM	Reported
82	CCV-7	CCV	1	Hexavalent Chromium	10/03/17 8:57 PM	Reported
83	CCB-7	CCB	1	Hexavalent Chromium	10/03/17 9:06 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171003A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**04/Oct/17 09:16:33**
No. of Injections:	**86**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	BLANK	1	1000	Unknown		10/03/2017 09:31	Finished	BLANK
12	BLANK	2	1000	Unknown		10/03/2017 09:42	Finished	BLANK
13	CCV-1,CCV,1,	3	1000	Unknown		10/03/2017 09:51	Finished	CCV @5ppb, IWST-171002A
14	PQL@0.2ppb,CCV2,	4	1000	Unknown		10/03/2017 10:00	Finished	PQL @ 0.2ppb
15	CCB-1,CCB,1,	5	1000	Unknown		10/03/2017 10:10	Finished	CCB R170921A
16	MB-H2O,MBLK,1	6	1000	Unknown		10/03/2017 10:19	Finished	MB R170921A
17	LCS-H2O,LCS,1	7	1000	Unknown		10/03/2017 10:29	Finished	LCS, IWST-171002B
18	N026225-001A,SAMP	9	1000	Unknown		10/03/2017 10:43	Finished	SAMP,10mL
19	N026225-002A,SAMP	10	1000	Unknown		10/03/2017 10:54	Finished	SAMP,10mL
20	N026225-003A,SAMP	11	1000	Unknown		10/03/2017 11:04	Finished	SAMP,10mL
21	N026225-004A,SAMP	12	1000	Unknown		10/03/2017 11:13	Finished	SAMP,10mL
22	N026225-001AMS,MS	13	1000	Unknown		10/03/2017 11:23	Finished	MS (1ppb), IWST-171002B,10
23	N026225-002AMS,MS	14	1000	Unknown		10/03/2017 11:32	Finished	MS (1ppb), IWST-171002B,10
24	N026225-003AMS,MS	15	1000	Unknown		10/03/2017 11:42	Finished	MS (1ppb), IWST-171002B,10
25	N026225-004AMS,MS	16	1000	Unknown		10/03/2017 11:51	Finished	MS (1ppb), IWST-171002B,10
26	CCV-2,CCV1,1,	17	1000	Unknown		10/03/2017 12:01	Finished	CCV @10ppb, IWST-171002A
27	CCB-2,CCB,1,	18	1000	Unknown		10/03/2017 12:10	Finished	CCB R170912A
28	N026225-001AMSD,M	19	1000	Unknown		10/03/2017 12:20	Finished	MSD (1ppb), IWST-171002B,1
29	N026225-002ADUP,D	20	1000	Unknown		10/03/2017 12:29	Finished	DUP,10mL
30	N026225-005A,SAMP	21	1000	Unknown		10/03/2017 12:39	Finished	SAMP,10mL
31	N026225-005AMS,MS	22	1000	Unknown		10/03/2017 12:48	Finished	MS (1ppb), IWST-171002B,10
32	N026225-006A,SAMP	23	1000	Unknown		10/03/2017 12:57	Finished	SAMP,10mL
33	N026225-006AMS,MS	24	1000	Unknown		10/03/2017 13:07	Finished	MS (1ppb), IWST-171002B,10
34	N026225-007A,SAMP	25	1000	Unknown		10/03/2017 13:16	Finished	SAMP,10mL
35	N026225-007AMS,MS	26	1000	Unknown		10/03/2017 13:26	Finished	MS (1ppb), IWST-171002B,10
36	N026222-001A,SAMP	28	1000	Unknown		10/03/2017 13:35	Finished	SAMP,10mL
37	N026222-002A,SAMP	29	1000	Unknown		10/03/2017 13:45	Finished	SAMP,10mL
38	CCV-3,CCV,1,	30	1000	Unknown		10/03/2017 13:54	Finished	CCV @5ppb, IWST-171002A
39	CCB-3,CCB,1,	31	1000	Unknown		10/03/2017 14:04	Finished	CCB R170912A
40	N026222-003A,SAMP	32	1000	Unknown		10/03/2017 14:13	Finished	SAMP,10mL
41	N026222-004A,SAMP	33	1000	Unknown		10/03/2017 14:23	Finished	SAMP,10mL
42	N026222-005A,SAMP	34	1000	Unknown		10/03/2017 14:32	Finished	SAMP,10mL
43	N026222-006A,SAMP	35	1000	Unknown		10/03/2017 14:42	Finished	SAMP,10mL
44	N026222-002A,SAMP	36	1000	Unknown		10/03/2017 14:51	Finished	SAMP,2>10mL
45	N026226-004A,SAMP	37	1000	Unknown		10/03/2017 15:00	Finished	SAMP,10mL
46	N026226-004AMS,MS	38	1000	Unknown		10/03/2017 15:10	Finished	MS (1ppb), IWST-171002B,10
47	N026226-001A,SAMP	39	1000	Unknown		10/03/2017 15:19	Finished	SAMP,0.05>10mL
48	N026226-002A,SAMP	40	1000	Unknown		10/03/2017 15:29	Finished	SAMP,2>10mL
49	N026226-002AMS,MS	41	1000	Unknown		10/03/2017 15:38	Finished	MS (5ppb), IWST-171002B,2>1
50	CCV-4,CCV1,1,	42	1000	Unknown		10/03/2017 15:48	Finished	CCV @10ppb, IWST-171002A
51	CCB-4,CCB,1,	43	1000	Unknown		10/03/2017 15:57	Finished	CCB R170912A
52	N026226-003A,SAMP	1	1000	Unknown		10/03/2017 16:07	Finished	SAMP,2>10mL
53	N026226-003AMS,MS	2	1000	Unknown		10/03/2017 16:19	Finished	MS (5ppb), IWST-171002B,2>1
54	N026225-004AMS,MS	3	1000	Unknown		10/03/2017 16:28	Finished	MS (1ppb), IWST-171002B,10
55	N026226-001A,SAMP	4	1000	Unknown		10/03/2017 16:37	Finished	SAMP,10mL
56	N026226-003A,SAMP	5	1000	Unknown		10/03/2017 16:47	Finished	SAMP,10mL
57	N026226-003AMS,MS	6	1000	Unknown		10/03/2017 16:56	Finished	MS (5ppb), IWST-171002B,10
58	N026226-003AMS,MS	7	1000	Unknown		10/03/2017 17:06	Finished	MS (1ppb), IWST-171002B,2>1
59	N026225-002AMS,MS	8	1000	Unknown		10/03/2017 17:15	Finished	MS (1ppb), IWST-171002B,10
60	N026226-001AMS,MS	9	1000	Unknown		10/03/2017 17:25	Finished	MS (1ppb), IWST-171002B,10

61	N026226-001A,SAMP	11	1000	Unknown		10/03/2017 17:36	Finished	CCB R170912A
62	CCV-5,CCV,1,	12	1000	Unknown		10/03/2017 17:47	Finished	CCV @5ppb, IWST-171002A
63	CCB-5,CCB,1,	13	1000	Unknown		10/03/2017 17:57	Finished	CCB R170912A
64	N026226-001AMS,MS	14	1000	Unknown		10/03/2017 18:06	Finished	MS (1ppb), IWST-171002B,2>1
65	LCS-2,LCS,1	15	1000	Unknown		10/03/2017 18:16	Finished	LCS, IWST-171002B
66	MB-2,MBLK,1	16	1000	Unknown		10/03/2017 18:25	Finished	MB R170921A
67	N026224-003A,SAMP	17	1000	Unknown		10/03/2017 18:35	Finished	SAMP,10mL
68	N026224-003AMS,MS	18	1000	Unknown		10/03/2017 18:44	Finished	MS (1ppb), IWST-171002B,10
69	N026224-003AMSD,M	19	1000	Unknown		10/03/2017 18:54	Finished	MSD (1ppb), IWST-171002B,10
70	N026224-004A,SAMP	20	1000	Unknown		10/03/2017 19:03	Finished	SAMP,10mL
71	N026224-004ADUP,D	21	1000	Unknown		10/03/2017 19:13	Finished	DUP,10mL
72	N026224-001A,SAMP	22	1000	Unknown		10/03/2017 19:22	Finished	SAMP,10mL
73	N026224-002A,SAMP	23	1000	Unknown		10/03/2017 19:32	Finished	SAMP,10mL
74	CCV-6,CCV1,1,	24	1000	Unknown		10/03/2017 19:41	Finished	CCV @10ppb, IWST-171002A
75	CCB-6,CCB,1,	25	1000	Unknown		10/03/2017 19:50	Finished	CCB R170921A
76	N026224-005A,SAMP	26	1000	Unknown		10/03/2017 20:00	Finished	SAMP,10mL
77	N026224-006A,SAMP	27	1000	Unknown		10/03/2017 20:09	Finished	SAMP,10mL
78	N026224-007A,SAMP	28	1000	Unknown		10/03/2017 20:19	Finished	SAMP,10mL
79	N026224-008A,SAMP	29	1000	Unknown		10/03/2017 20:28	Finished	SAMP,10mL
80	N026224-010A,SAMP	30	1000	Unknown		10/03/2017 20:38	Finished	SAMP,10mL
81	N026224-009A,SAMP	31	1000	Unknown		10/03/2017 20:47	Finished	SAMP,10mL
82	CCV-7,CCV,1,	32	1000	Unknown		10/03/2017 20:57	Finished	CCV @5ppb, IWST-171002A
83	CCB-7,CCB,1,	33	1000	Unknown		10/03/2017 21:06	Finished	CCB R170921A
84	SHUTDOWN	34	1000	Unknown		10/03/2017 21:16	Finished	
85	Eluent: R171002A	35	1000	Unknown		n.a.	Finished	Eluent
86	PCR: R171003B	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 10/3/17
Time Prepared: 1012H
Prepared By: MSA

Slope: r 97.2%
pH 4: 4.59 @ 17.9°C
7: 7.02 @ 18.1°C
10: 10.05 @ 18.1°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CAN-17DC20A
NH4OH + NH4SO4 eluent: M170D2A
NH4OH + NH4SO4 buffer: M170921A / M170912A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M026222-001A	9.68	-	~250 mL	~250 mL		M170912A
2)	2A	9.59	-				
3)	3A	9.58	-				
4)	4A	9.55	-				
5)	5A	9.54	-				
6)	6A	9.63	-				
7)	M026224-1A	9.61	-				
8)	2A	9.61	-				
9)	3A	9.63	-				
10)	4A	9.66	-				
11)	5A	9.45	-				
12)	6A	9.56	-				
13)	7A	9.55	-				
14)	8A	9.67	-				
15)	9A	9.60	-				
	10A	9.76	-				

Sample Preparation

Date Prepared: 10/3/17
Time Prepared: 1012H
Prepared By: MSA

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CAN-17D620A
NH4OH + NH4SO4 eluent: M170D2A / M170D06A
NH4OH + NH4SO4 buffer: M170921A / M170912A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M026225-1A	9.70	-	~250mL	~250mL		M170921A
2)	2A	9.69	-				
3)	3A	9.68	-				
4)	4A	9.67	-				
5)	5A	9.59	-				
6)	6A	9.52	-				
7)	7A	9.60	-				
8)	M026226-1A	9.58	-				
9)	2A	9.67	-				
10)	3A	9.59	-				
11)	4A	9.70	-				
12)							
13)							
14)							
15)							

jba 10/9/2017

Logbook No. 13

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 10/2/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0524	0.2415	1.2450	2.4569	3.7182	4.9418	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-170814H	IWST-171002A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ICV**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2780354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.034	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2780355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.192	0.20	0.2000	0	95.8	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCV**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.011	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.193	0.20	0.2000	0	96.6	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.976	0.20	10.00	0	99.8	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCV**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.975	0.20	5.000	0	99.5	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780391**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.864	0.20	10.00	0	98.6	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCV**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.965	0.20	5.000	0	99.3	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ZZZZZZ**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.943	0.20	10.00	0	99.4	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **ICB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2780356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780359**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780370**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118282**
Client ID: **CCB**	Batch ID: **R118282**	TestNo: **EPA 218.6**		Analysis Date: **10/3/2017**	SeqNo: **2780402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/3/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.090	
CCV-3	4.065	
CCV-4	4.081	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.071	
Actual RT Window	3.991 - 4.151	
Applied RT Window	3.871 - 4.271	
MB-R118282	N.A.	N.A.
LCS-R118282	4.065	PASS
N026225-001A	N.A.	N.A.
N026225-002A	4.081	PASS
N026225-003A	4.090	PASS
N026225-004A	4.065	PASS
N026225-001AMS	4.065	PASS
N026225-002AMS	4.065	PASS
N026225-003AMS	4.065	PASS
N026225-004AMS	4.090	PASS
N026225-001AMSD	4.073	PASS
N026225-002ADUP	4.073	PASS
N026225-005A	4.056	PASS
N026225-005AMS	4.065	PASS
N026225-006A	4.065	PASS
N026225-006AMS	4.073	PASS
N026225-007A	4.073	PASS
N026225-007AMS	4.065	PASS
N026222-001A	4.065	PASS
N026222-002A	4.073	PASS
N026222-003A	N.A.	N.A.
N026222-004A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/3/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.090	
CCV-3	4.065	
CCV-4	4.081	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.071	
Actual RT Window	3.991 - 4.151	
Applied RT Window	3.871 - 4.271	
N026222-005A	N.A.	N.A.
N026222-006A	N.A.	N.A.
N026222-002A	4.081	PASS
N026226-004A	N.A.	N.A.
N026226-004AMS	4.065	PASS
N026226-001A	N.A.	N.A.
N026226-002A	4.031	PASS
N026226-002AMS	4.040	PASS
N026226-003A	4.006	PASS
N026226-003AMS	4.015	PASS
N026225-004AMS	4.073	PASS
N026226-001A	N.A.	N.A.
N026226-003A	N.A.	N.A.
N026226-003AMS	N.A.	N.A.
N026226-003AMS	4.006	PASS
N026225-002AMS	4.073	PASS
N026226-001AMS	3.923	PASS
N026226-001A	N.A.	N.A.
N026226-001AMS	4.048	PASS
LCS-R118283	4.065	PASS
MB-R118283	N.A.	N.A.
N026224-003A	4.065	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/3/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.090	
CCV-3	4.065	
CCV-4	4.081	
CCV-5	4.065	
CCV-6	4.065	
CCV-7	4.065	
Average	4.071	
Actual RT Window	3.991 - 4.151	
Applied RT Window	3.871 - 4.271	
N026224-003AMS	4.065	PASS
N026224-003AMSD	4.073	PASS
N026224-004A	4.065	PASS
N026224-004ADUP	4.065	PASS
N026224-001A	4.048	PASS
N026224-002A	4.048	PASS
N026224-005A	4.073	PASS
N026224-006A	4.056	PASS
N026224-007A	4.065	PASS
N026224-008A	N.A.	N.A.
N026224-010A	N.A.	N.A.
N026224-009A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA



INITIAL CALIBRATION

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

rba 10/7/2017

10/9/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

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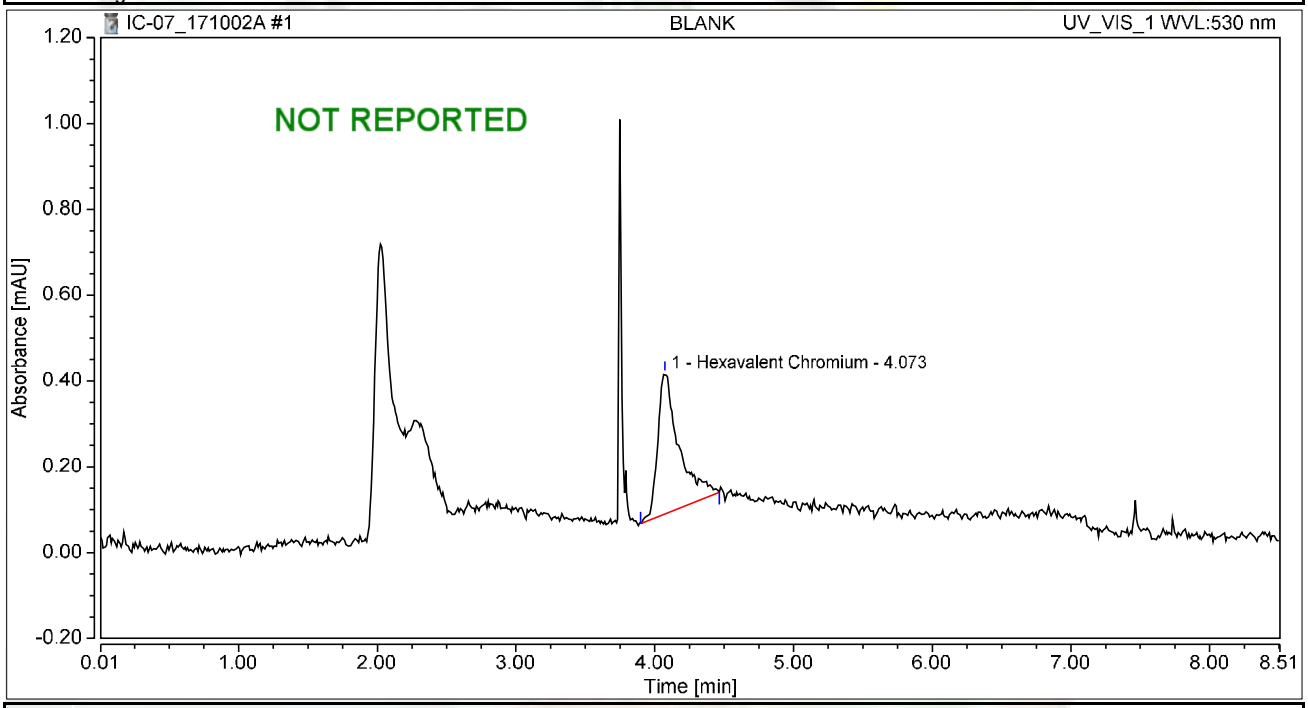
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 09:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

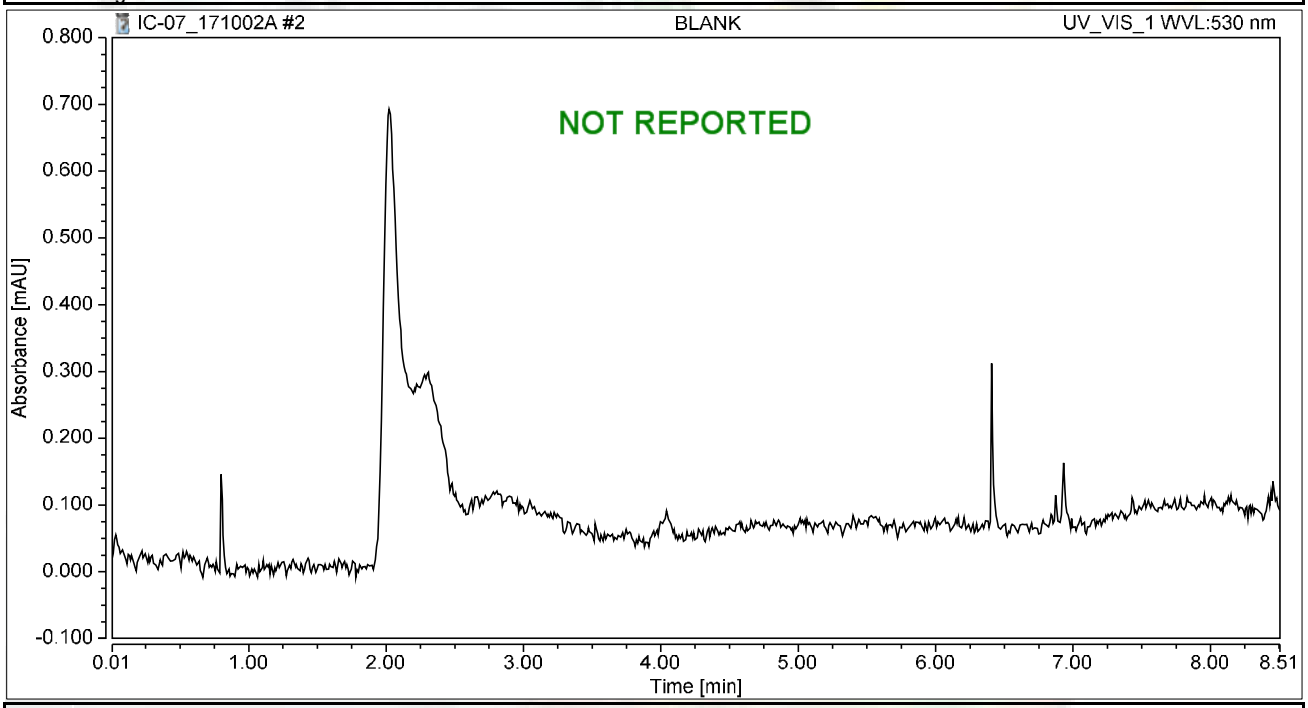
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.059	0.328	100.00	100.00	0.2368
Total:			**0.059**	**0.328**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

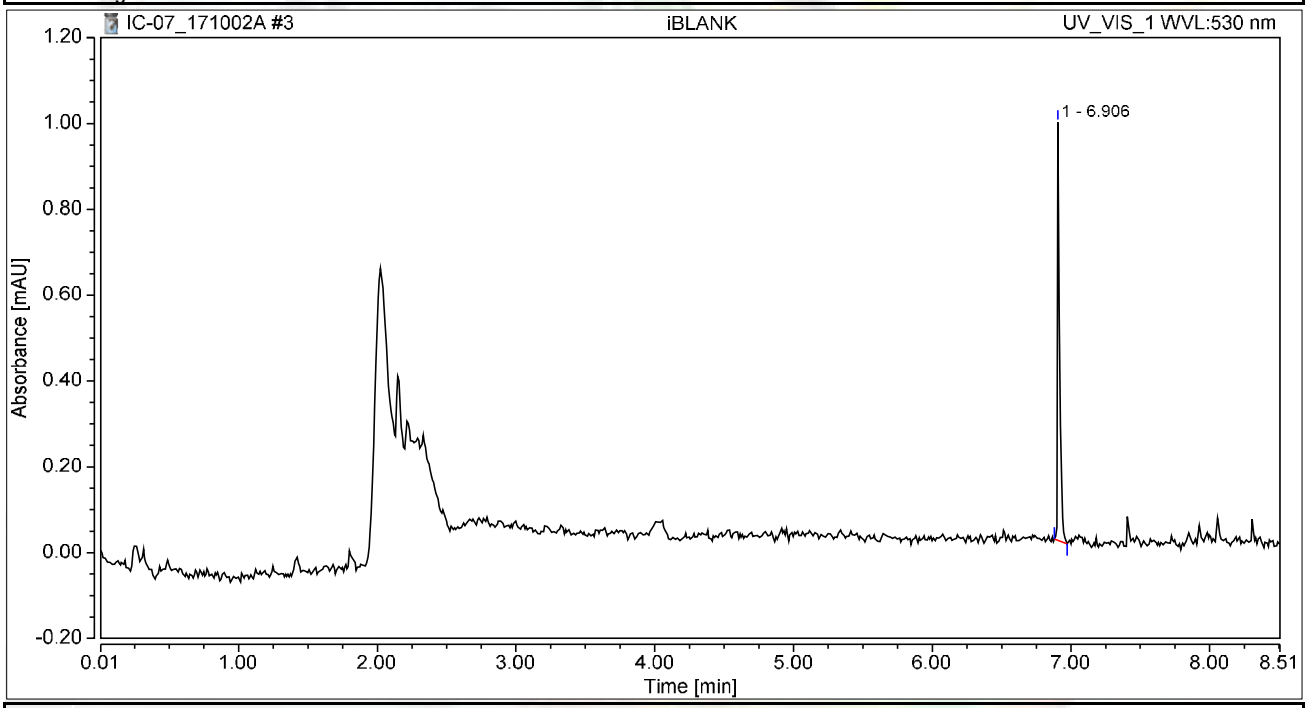
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

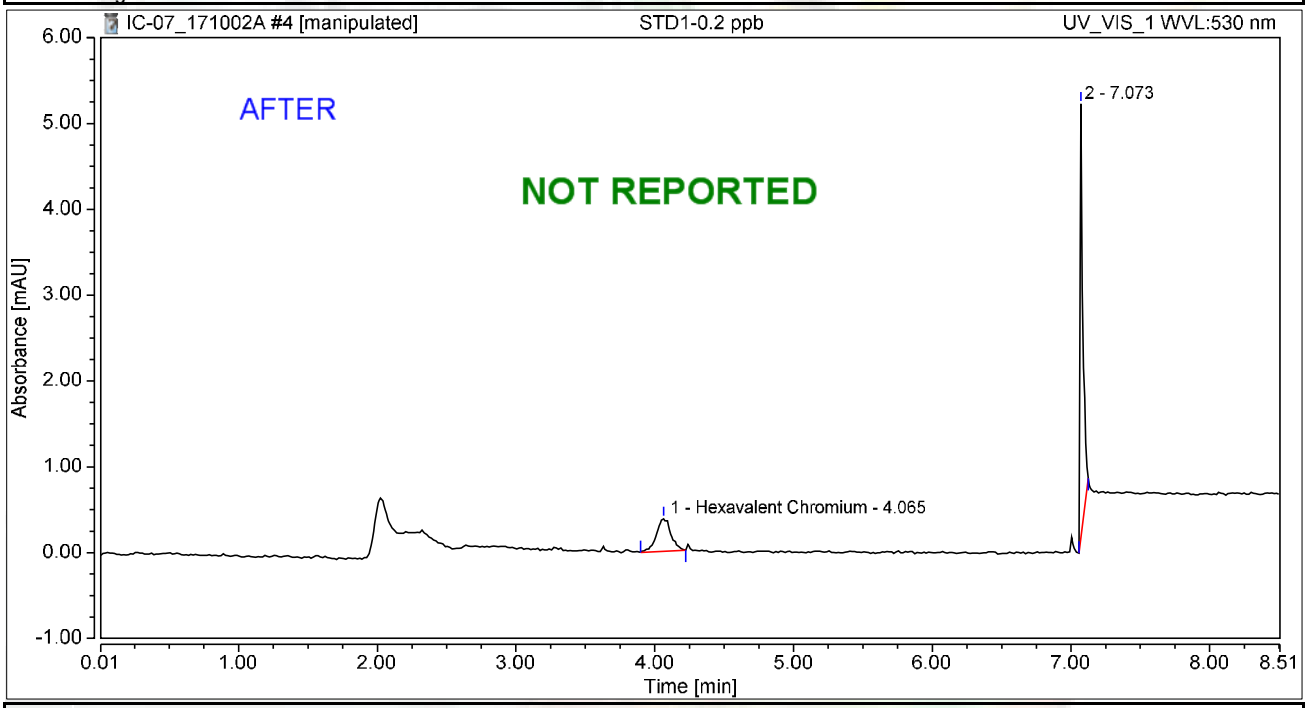
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.906	0.017	0.974	100.00	100.00	n.a.
Total:			**0.017**	**0.974**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.381	26.97	7.06	0.1884
2		7.073	0.126	5.016	73.03	92.94	n.a.
Total:			**0.173**	**5.396**	**100.00**	**100.00**	

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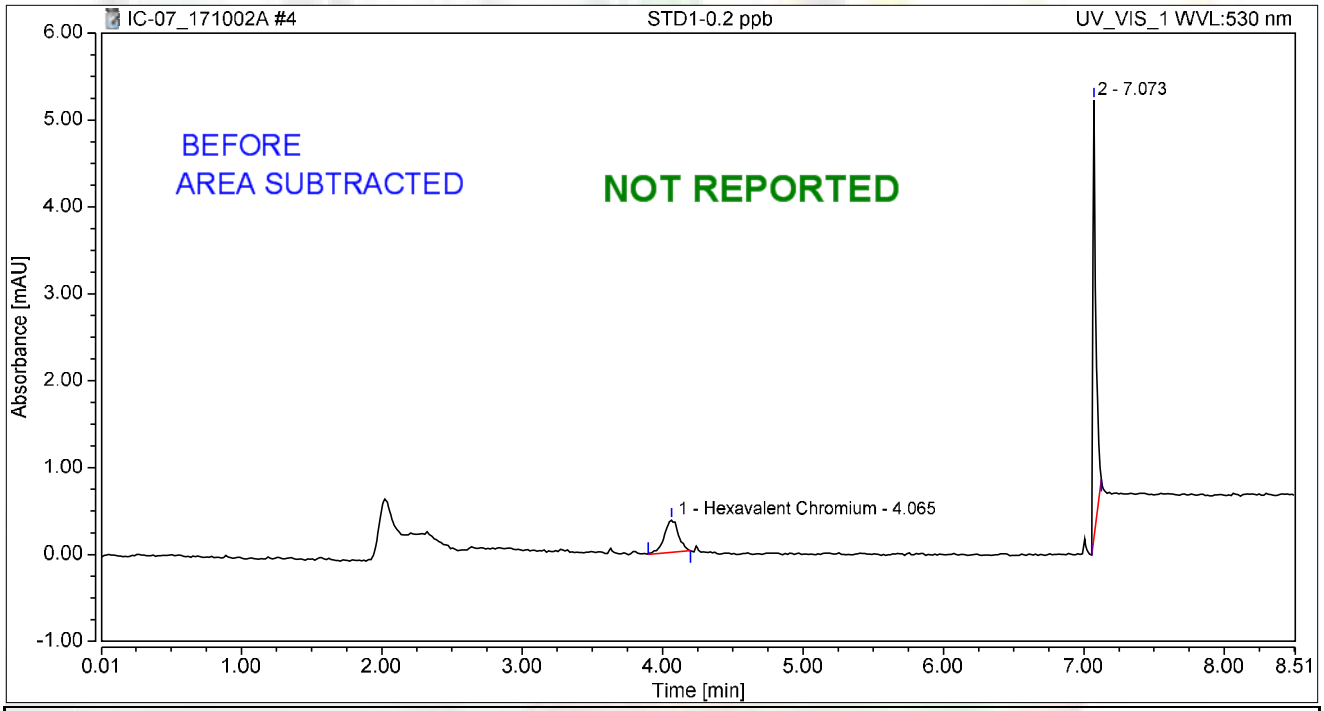
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.044	0.372	25.80	6.90	0.1743
2		7.073	0.126	5.016	74.20	93.10	n.a.
Total:			**0.170**	**5.387**	**100.00**	**100.00**	

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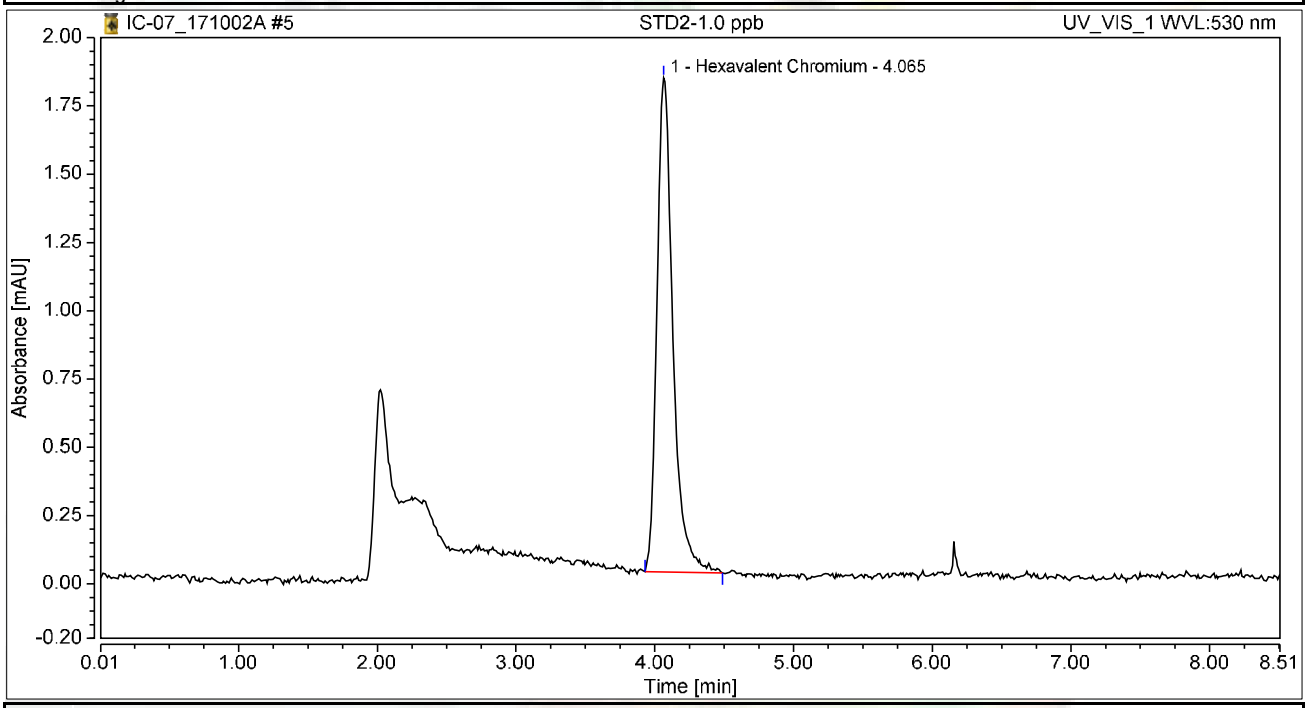
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

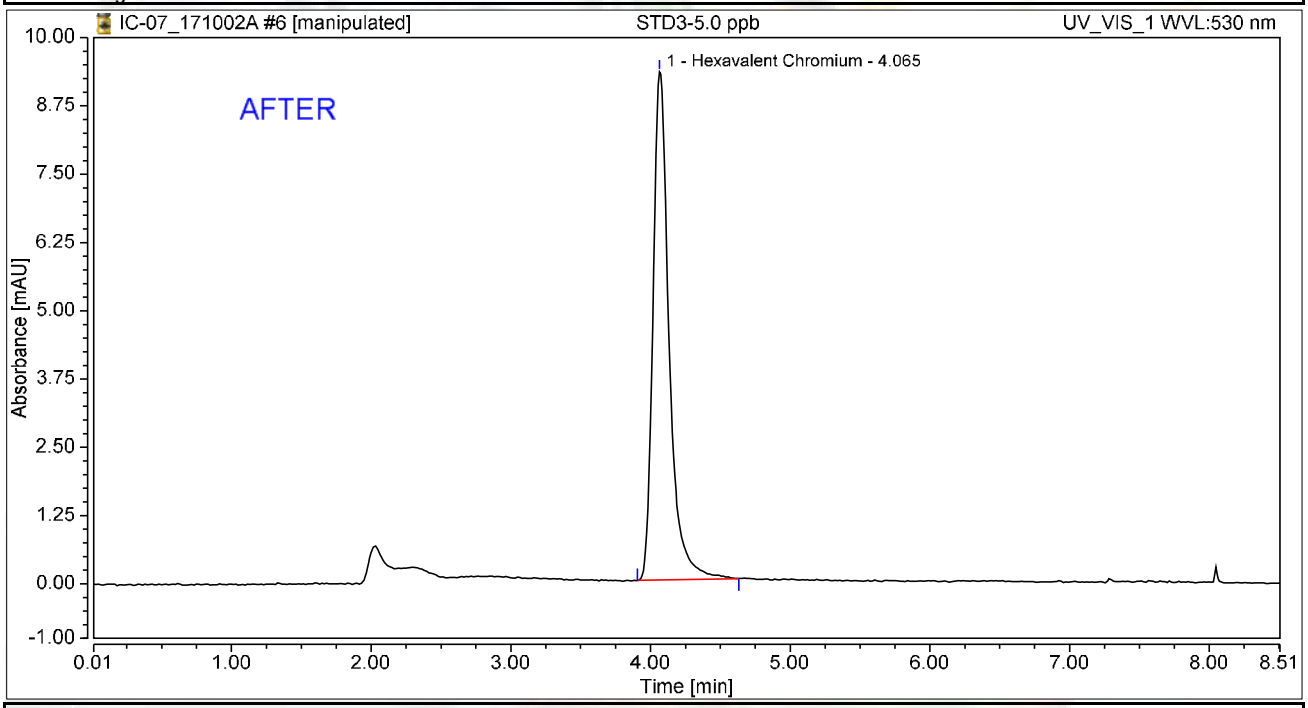
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.242	1.809	100.00	100.00	0.9771
Total:			**0.242**	**1.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.245	9.303	100.00	100.00	5.0364
Total:			**1.245**	**9.303**	**100.00**	**100.00**	

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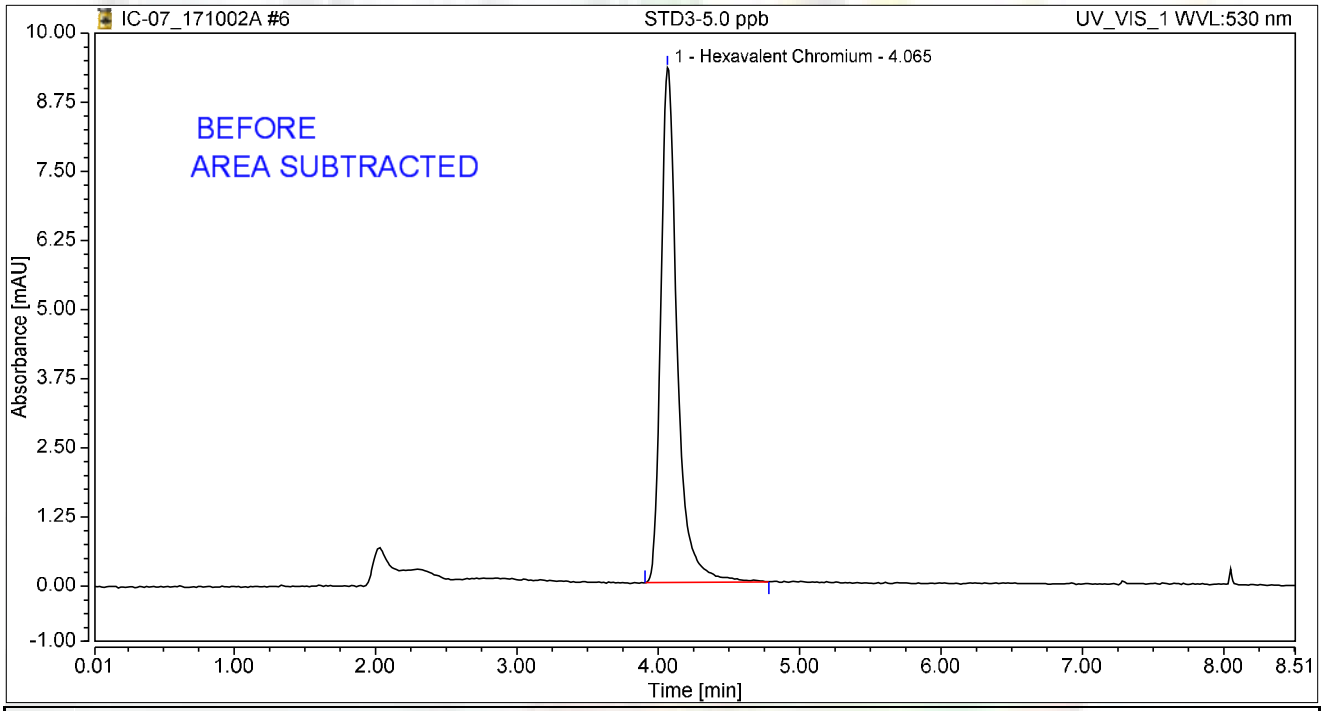
Reviewed by: My first report/integration
Nancy 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.256	9.308	100.00	100.00	4.9927
Total:			**1.256**	**9.308**	**100.00**	**100.00**	

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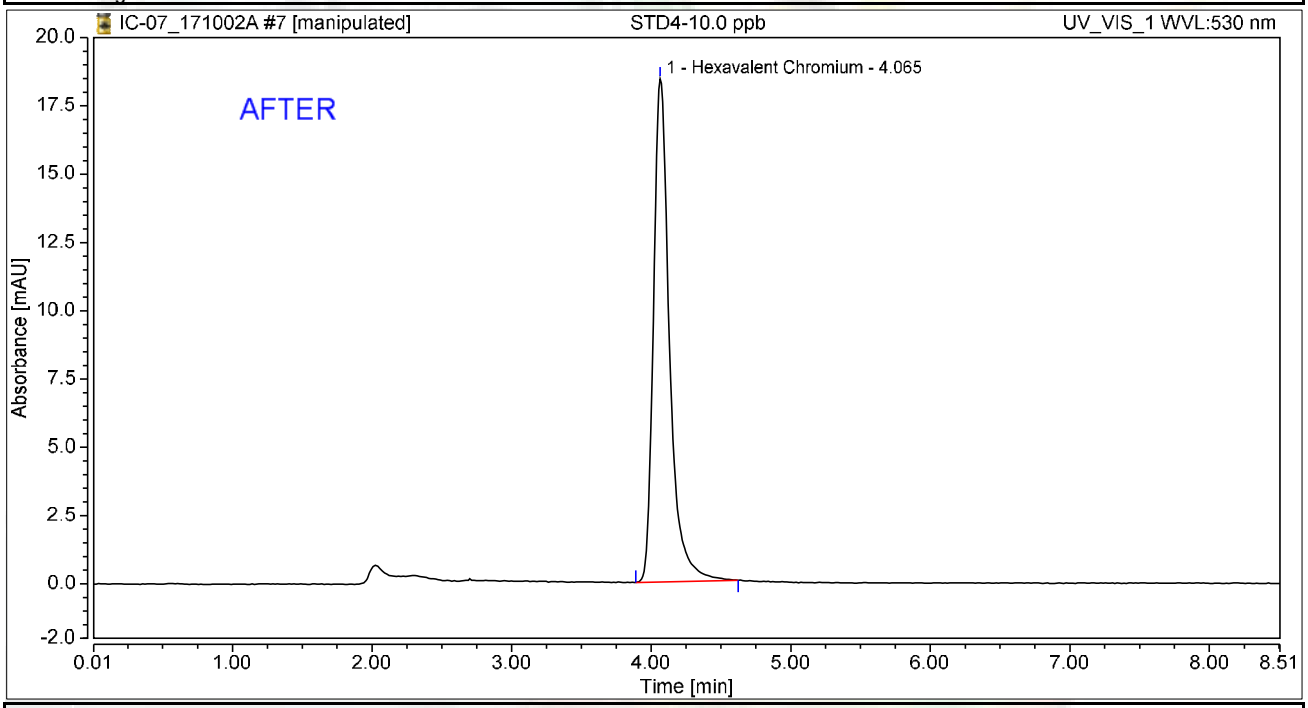
Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.457	18.420	100.00	100.00	9.9392
Total:			**2.457**	**18.420**	**100.00**	**100.00**	

rba 10/7/2017

My first report integration

Reviewed by: Nancy 10/9/2017

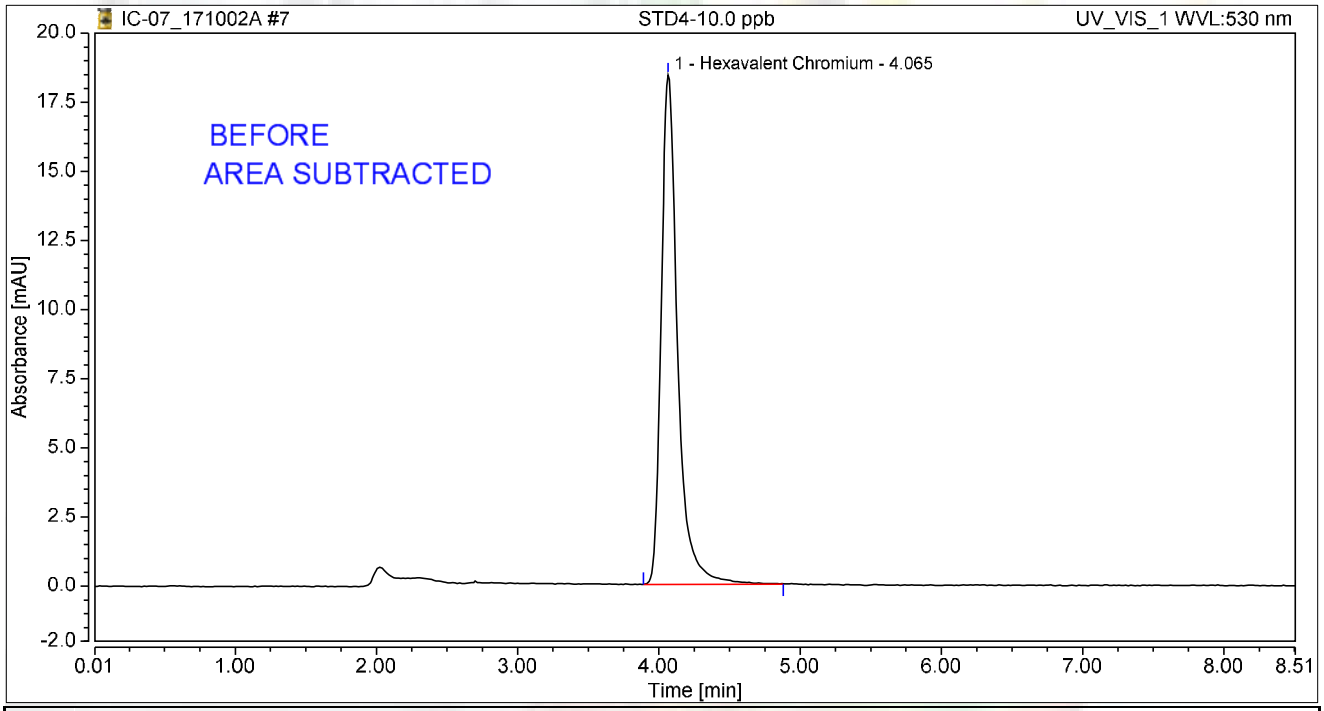
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.489	18.435	100.00	100.00	9.8947
Total:			**2.489**	**18.435**	**100.00**	**100.00**	

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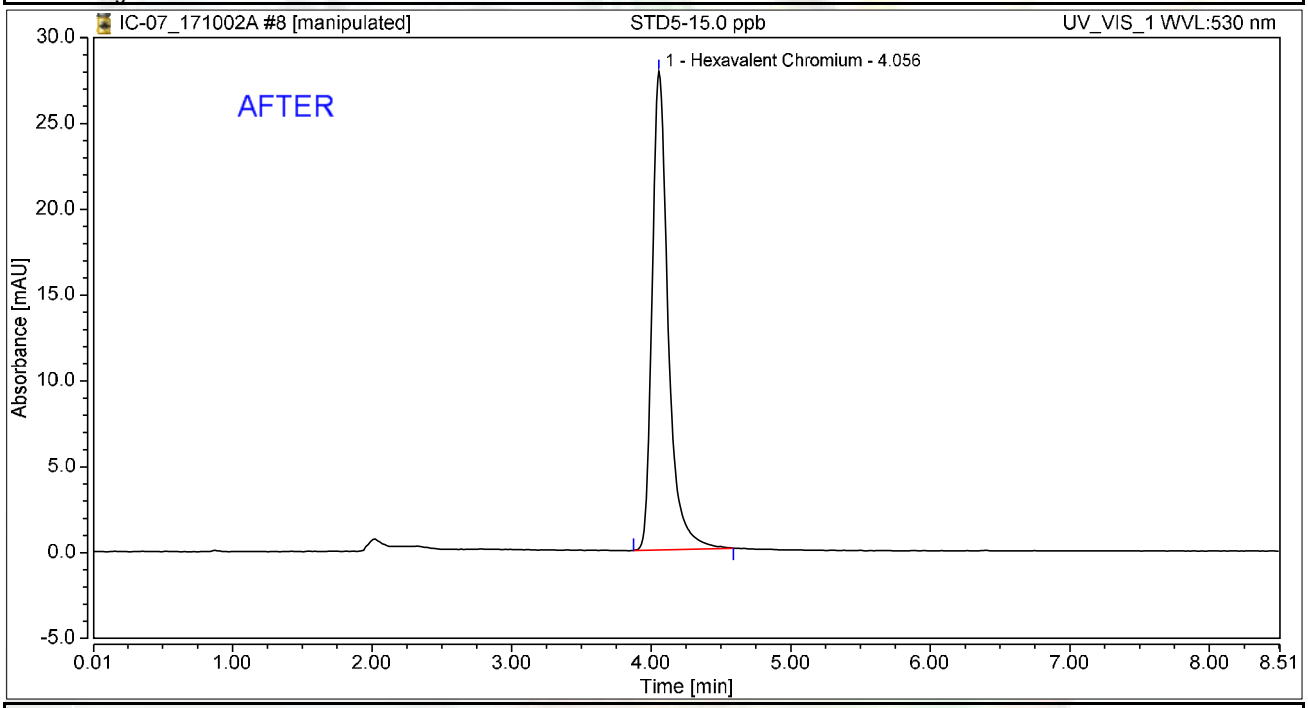
Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.718	27.856	100.00	100.00	15.0414
Total:			**3.718**	**27.856**	**100.00**	**100.00**	

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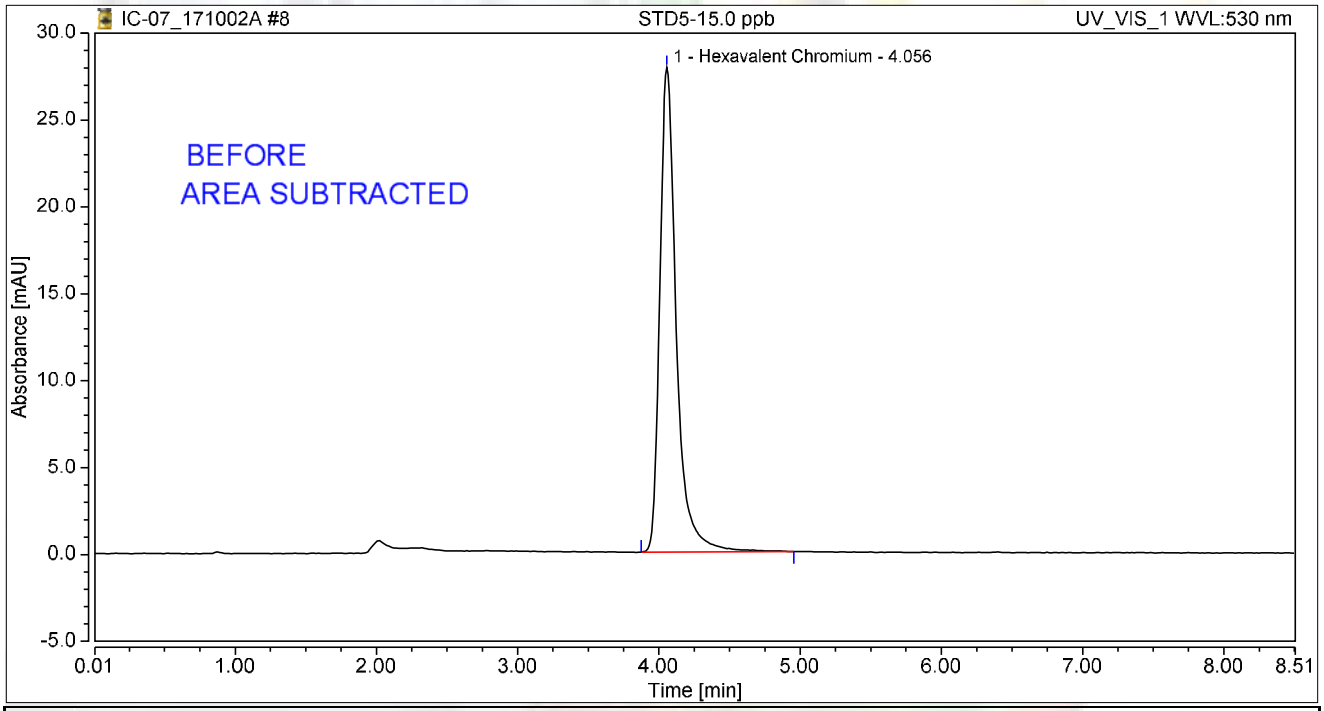
Reviewed by: 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.775	27.882	100.00	100.00	15.0084
Total:			**3.775**	**27.882**	**100.00**	**100.00**	

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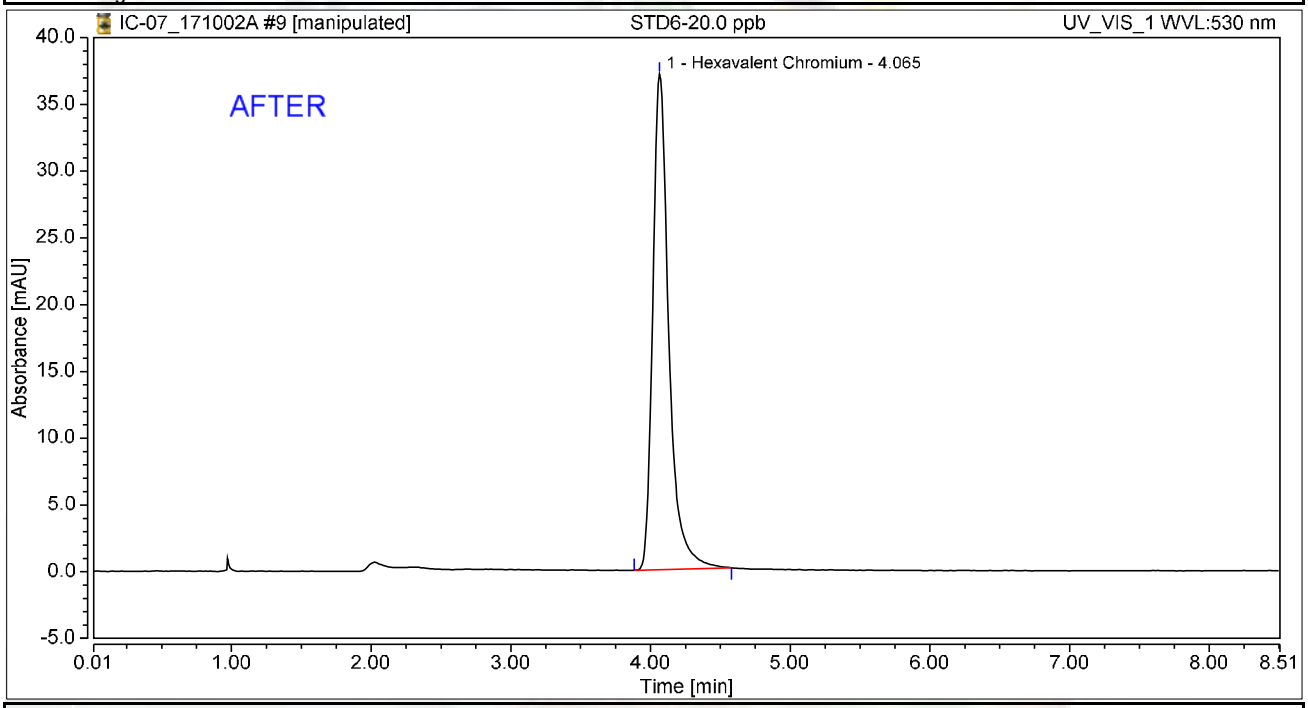
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	4.942	37.101	100.00	100.00	19.9913
Total:			**4.942**	**37.101**	**100.00**	**100.00**	

rba 10/7/2017

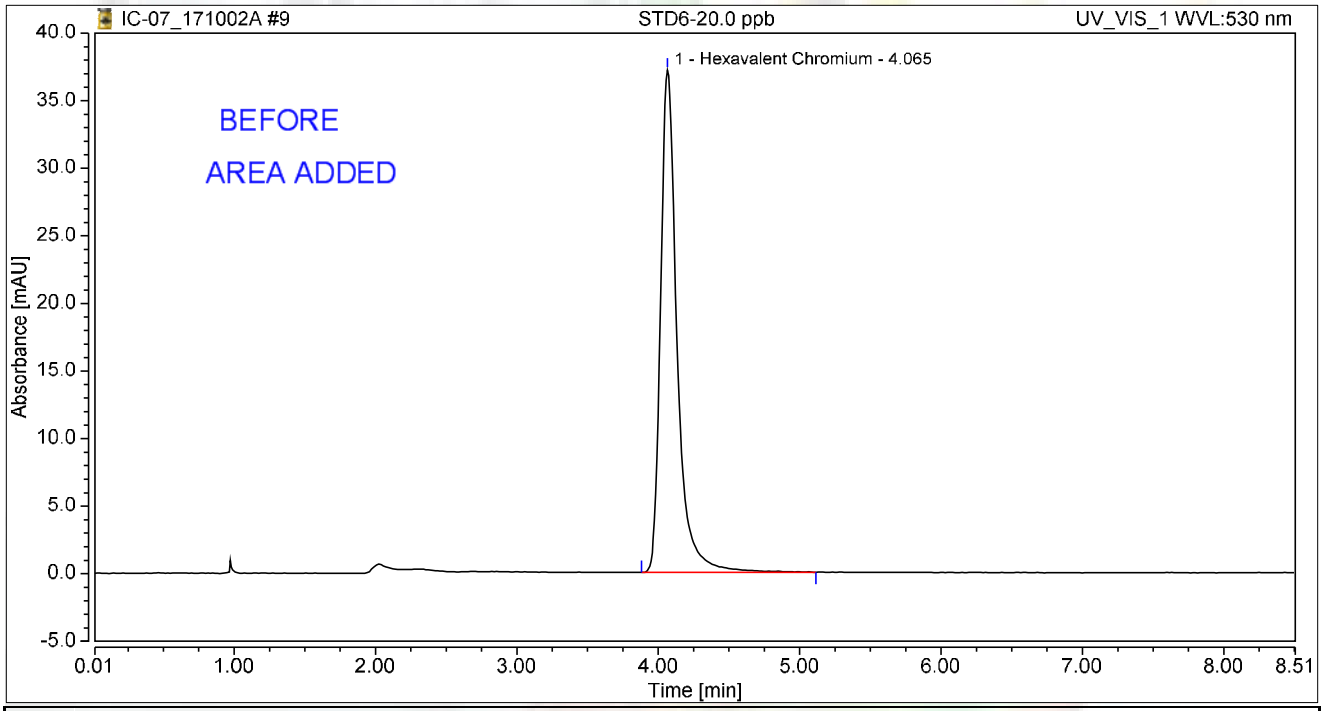
Reviewed by: 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	5.043	37.149	100.00	100.00	20.0500
Total:			**5.043**	**37.149**	**100.00**	**100.00**	

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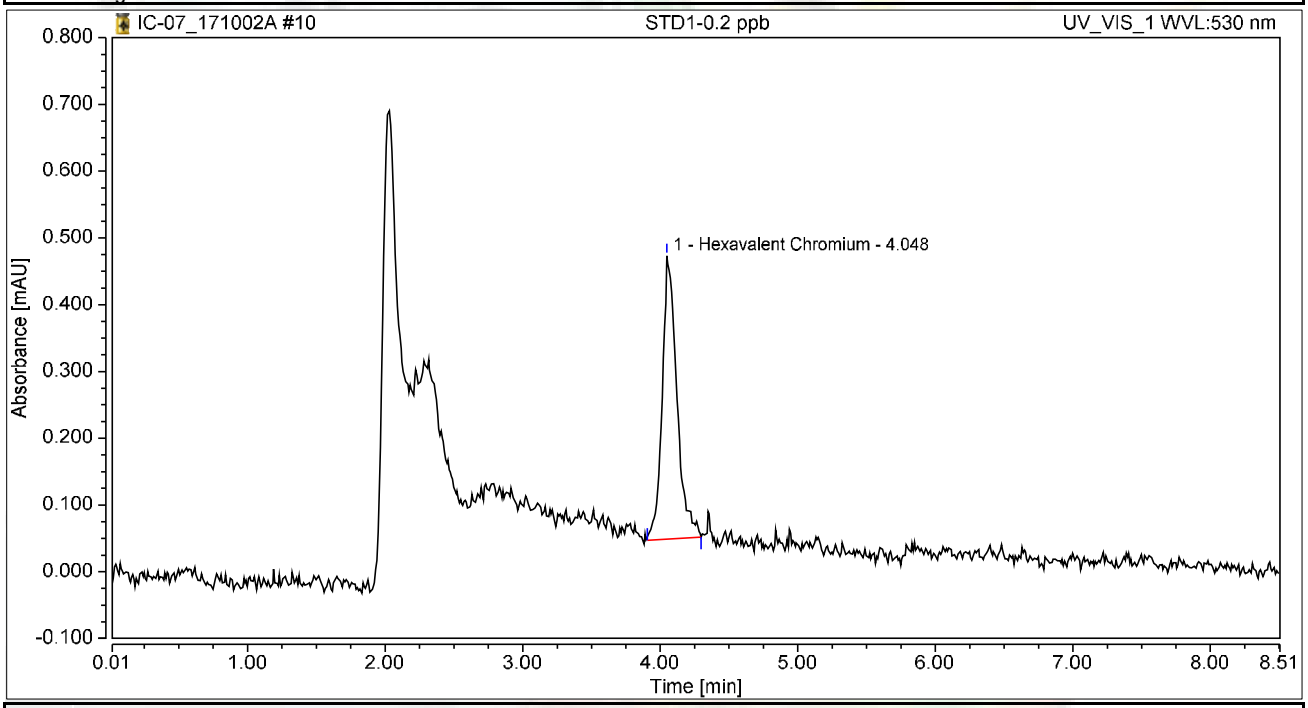
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



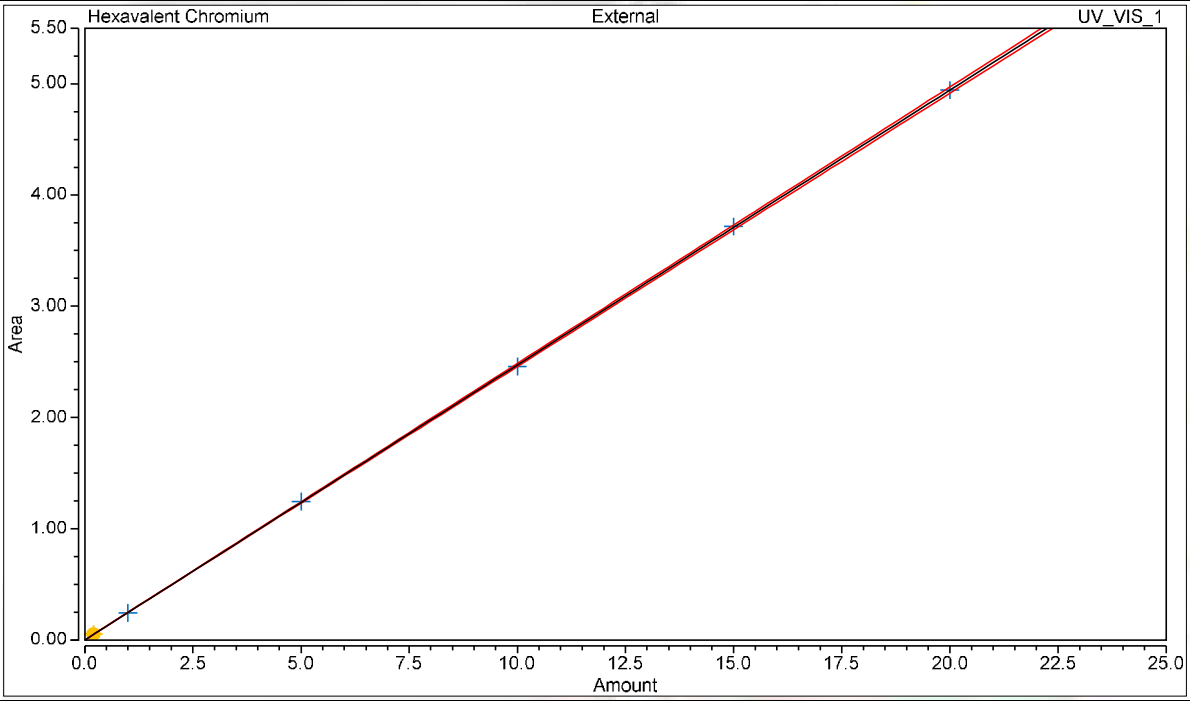
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.052	0.424	100.00	100.00	0.2120
Total:			**0.052**	**0.424**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2472
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

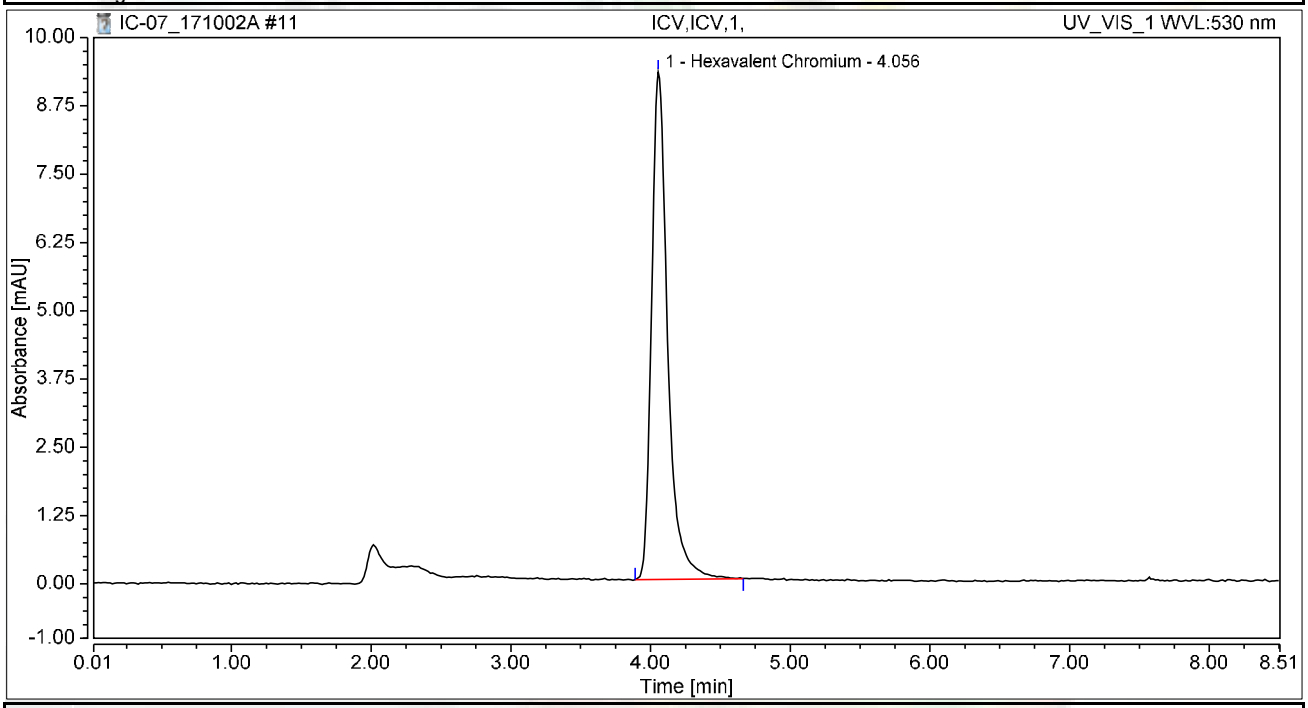
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
5	STD2-1.0 ppb	02	1.0000	0.2415	0.242	1.809
6	STD3-5.0 ppb	03	5.0000	1.2450	1.245	9.303
7	STD4-10.0 ppb	04	10.0000	2.4569	2.457	18.420
8	STD5-15.0 ppb	05	15.0000	3.7182	3.718	27.856
9	STD6-20.0 ppb	06	20.0000	4.9418	4.942	37.101
10	STD1-0.2 ppb	01	0.2000	0.0524	0.052	0.424

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

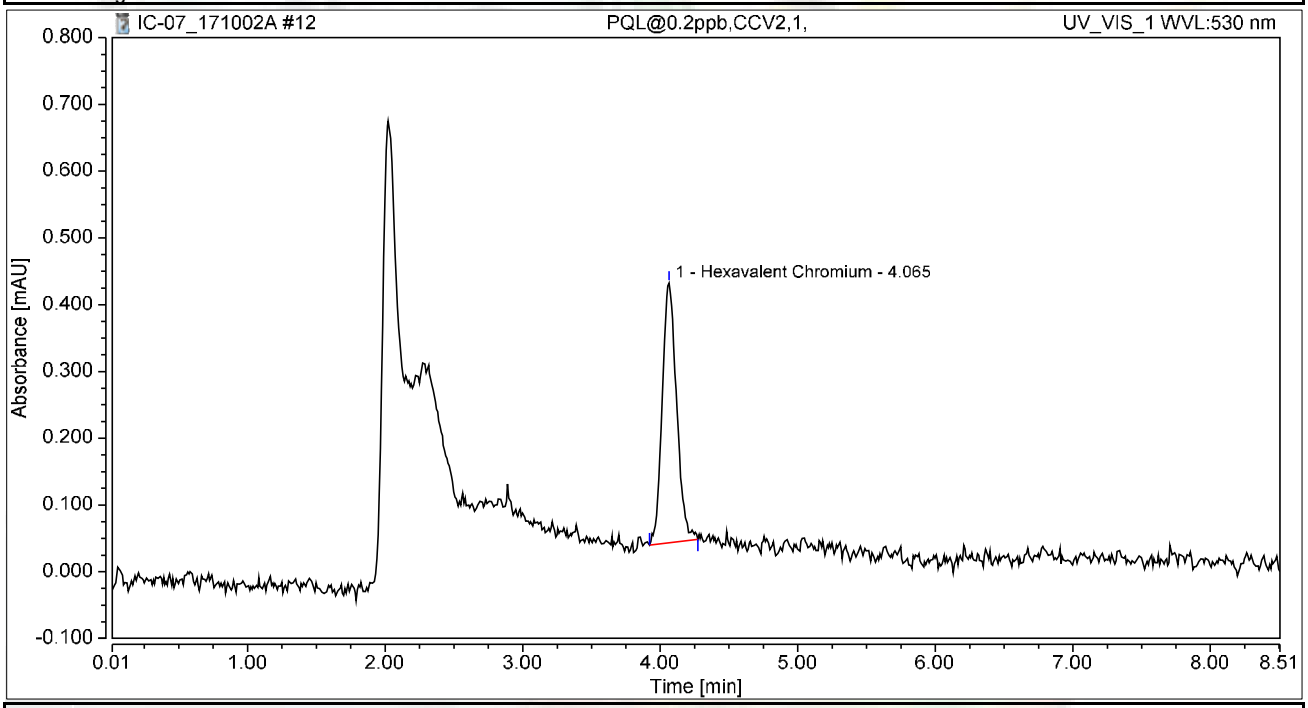
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.244	9.289	100.00	100.00	5.0342
Total:			**1.244**	**9.289**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

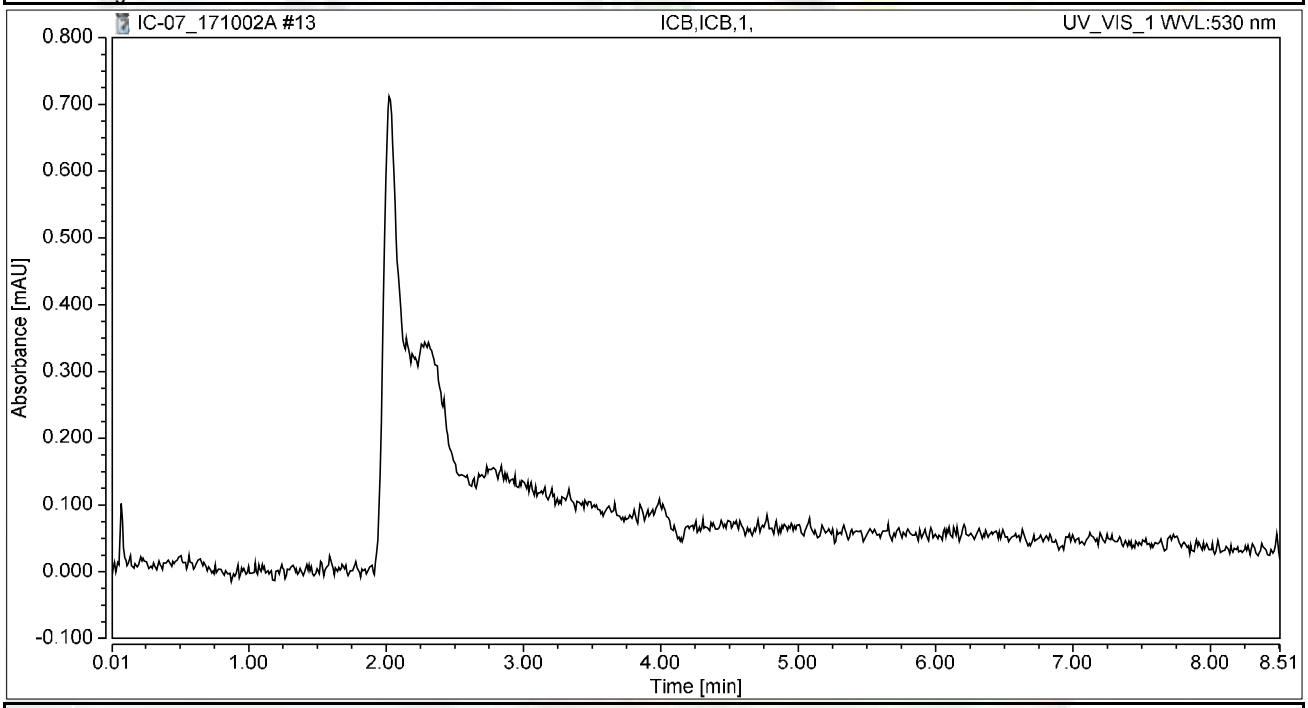
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.389	100.00	100.00	0.1915
Total:			**0.047**	**0.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 171003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	BLANK	BLANK	1	Hexavalent Chromium	10/03/17 9:31 AM	Not Reported
12	BLANK	BLANK	1	Hexavalent Chromium	10/03/17 9:42 AM	Not Reported
13	CCV-1	CCV	1	Hexavalent Chromium	10/03/17 9:51 AM	Reported
14	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/03/17 10:00 AM	Reported
15	CCB-1	CCB	1	Hexavalent Chromium	10/03/17 10:10 AM	Reported
16	MB-R118282	MBLK	1	Hexavalent Chromium	10/03/17 10:19 AM	Reported
17	LCS-R118282	LCS	1	Hexavalent Chromium	10/03/17 10:29 AM	Reported
18	N026225-001A	SAMP	1	Hexavalent Chromium	10/03/17 10:43 AM	Reported
19	N026225-002A	SAMP	1	Hexavalent Chromium	10/03/17 10:54 AM	Reported
20	N026225-003A	SAMP	1	Hexavalent Chromium	10/03/17 11:04 AM	Reported
21	N026225-004A	SAMP	1	Hexavalent Chromium	10/03/17 11:13 AM	Reported
22	N026225-001AMS	MS	1	Hexavalent Chromium	10/03/17 11:23 AM	Reported
23	N026225-002AMS	MS	1	Hexavalent Chromium	10/03/17 11:32 AM	Not Reported
24	N026225-003AMS	MS	1	Hexavalent Chromium	10/03/17 11:42 AM	Reported
25	N026225-004AMS	MS	1	Hexavalent Chromium	10/03/17 11:51 AM	Reported
26	CCV-2	CCV1	1	Hexavalent Chromium	10/03/17 12:01 PM	Reported
27	CCB-2	CCB	1	Hexavalent Chromium	10/03/17 12:10 PM	Reported
28	N026225-001AMSD	MSD	1	Hexavalent Chromium	10/03/17 12:20 PM	Reported
29	N026225-002ADUP	DUP	1	Hexavalent Chromium	10/03/17 12:29 PM	Reported
30	N026225-005A	SAMP	1	Hexavalent Chromium	10/03/17 12:39 PM	Reported
31	N026225-005AMS	MS	1	Hexavalent Chromium	10/03/17 12:48 PM	Reported
32	N026225-006A	SAMP	1	Hexavalent Chromium	10/03/17 12:57 PM	Reported
33	N026225-006AMS	MS	1	Hexavalent Chromium	10/03/17 1:07 PM	Reported
34	N026225-007A	SAMP	1	Hexavalent Chromium	10/03/17 1:16 PM	Reported
35	N026225-007AMS	MS	1	Hexavalent Chromium	10/03/17 1:26 PM	Reported
36	N026222-001A	SAMP	1	Hexavalent Chromium	10/03/17 1:35 PM	Reported
37	N026222-002A	SAMP	1	Hexavalent Chromium	10/03/17 1:45 PM	Not Reported
38	CCV-3	CCV	1	Hexavalent Chromium	10/03/17 1:54 PM	Reported
39	CCB-3	CCB	1	Hexavalent Chromium	10/03/17 2:04 PM	Reported
40	N026222-003A	SAMP	1	Hexavalent Chromium	10/03/17 2:13 PM	Reported
41	N026222-004A	SAMP	1	Hexavalent Chromium	10/03/17 2:23 PM	Reported
42	N026222-005A	SAMP	1	Hexavalent Chromium	10/03/17 2:32 PM	Reported

INJECTION LOG: 171003A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026222-006A	SAMP	1	Hexavalent Chromium	10/03/17 2:42 PM	Reported
44	N026222-002A	SAMP	5	Hexavalent Chromium	10/03/17 2:51 PM	Reported
45	N026226-004A	SAMP	1	Hexavalent Chromium	10/03/17 3:00 PM	Reported
46	N026226-004AMS	MS	1	Hexavalent Chromium	10/03/17 3:10 PM	Reported
47	N026226-001A	SAMP	200	Hexavalent Chromium	10/03/17 3:19 PM	Not Reported
48	N026226-002A	SAMP	5	Hexavalent Chromium	10/03/17 3:29 PM	Reported
49	N026226-002AMS	MS	5	Hexavalent Chromium	10/03/17 3:38 PM	Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	10/03/17 3:48 PM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	10/03/17 3:57 PM	Reported
52	N026226-003A	SAMP	5	Hexavalent Chromium	10/03/17 4:07 PM	Reported
53	N026226-003AMS	MS	5	Hexavalent Chromium	10/03/17 4:19 PM	Not Reported
54	N026225-004AMS	MS	1	Hexavalent Chromium	10/03/17 4:28 PM	Not Reported
55	N026226-001A	SAMP	1	Hexavalent Chromium	10/03/17 4:37 PM	Not Reported
56	N026226-003A	SAMP	1	Hexavalent Chromium	10/03/17 4:47 PM	Not Reported
57	N026226-003AMS	MS	1	Hexavalent Chromium	10/03/17 4:56 PM	Not Reported
58	N026226-003AMS	MS	5	Hexavalent Chromium	10/03/17 5:06 PM	Not Reported
59	N026225-002AMS	MS	1	Hexavalent Chromium	10/03/17 5:15 PM	Reported
60	N026226-001AMS	MS	1	Hexavalent Chromium	10/03/17 5:25 PM	Not Reported
61	N026226-001A	SAMP	5	Hexavalent Chromium	10/03/17 5:36 PM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	10/03/17 5:47 PM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	10/03/17 5:57 PM	Reported
64	N026226-001AMS	MS	5	Hexavalent Chromium	10/03/17 6:06 PM	Reported
65	LCS-R118283	LCS	1	Hexavalent Chromium	10/03/17 6:16 PM	Reported
66	MB-R118283	MBLK	1	Hexavalent Chromium	10/03/17 6:25 PM	Reported
67	N026224-003A	SAMP	1	Hexavalent Chromium	10/03/17 6:35 PM	Reported
68	N026224-003AMS	MS	1	Hexavalent Chromium	10/03/17 6:44 PM	Reported
69	N026224-003AMSD	MSD	1	Hexavalent Chromium	10/03/17 6:54 PM	Reported
70	N026224-004A	SAMP	1	Hexavalent Chromium	10/03/17 7:03 PM	Reported
71	N026224-004ADUP	DUP	1	Hexavalent Chromium	10/03/17 7:13 PM	Reported
72	N026224-001A	SAMP	1	Hexavalent Chromium	10/03/17 7:22 PM	Reported
73	N026224-002A	SAMP	1	Hexavalent Chromium	10/03/17 7:32 PM	Reported
74	CCV-6	CCV1	1	Hexavalent Chromium	10/03/17 7:41 PM	Reported
75	CCB-6	CCB	1	Hexavalent Chromium	10/03/17 7:50 PM	Reported
76	N026224-005A	SAMP	1	Hexavalent Chromium	10/03/17 8:00 PM	Reported
77	N026224-006A	SAMP	1	Hexavalent Chromium	10/03/17 8:09 PM	Reported
78	N026224-007A	SAMP	1	Hexavalent Chromium	10/03/17 8:19 PM	Reported
79	N026224-008A	SAMP	1	Hexavalent Chromium	10/03/17 8:28 PM	Reported
80	N026224-010A	SAMP	1	Hexavalent Chromium	10/03/17 8:38 PM	Reported
81	N026224-009A	SAMP	1	Hexavalent Chromium	10/03/17 8:47 PM	Reported
82	CCV-7	CCV	1	Hexavalent Chromium	10/03/17 8:57 PM	Reported
83	CCB-7	CCB	1	Hexavalent Chromium	10/03/17 9:06 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171003A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**04/Oct/17 09:16:33**
No. of Injections:	**86**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	BLANK	1	1000	Unknown		10/03/2017 09:31	Finished	BLANK
12	BLANK	2	1000	Unknown		10/03/2017 09:42	Finished	BLANK
13	CCV-1,CCV,1,	3	1000	Unknown		10/03/2017 09:51	Finished	CCV @5ppb, IWST-171002A
14	PQL@0.2ppb,CCV2,1	4	1000	Unknown		10/03/2017 10:00	Finished	PQL @ 0.2ppb
15	CCB-1,CCB,1,	5	1000	Unknown		10/03/2017 10:10	Finished	CCB R170921A
16	MB-H2O,MBLK,1	6	1000	Unknown		10/03/2017 10:19	Finished	MB R170921A
17	LCS-H2O,LCS,1	7	1000	Unknown		10/03/2017 10:29	Finished	LCS, IWST-171002B
18	N026225-001A,SAMP	9	1000	Unknown		10/03/2017 10:43	Finished	SAMP,10mL
19	N026225-002A,SAMP	10	1000	Unknown		10/03/2017 10:54	Finished	SAMP,10mL
20	N026225-003A,SAMP	11	1000	Unknown		10/03/2017 11:04	Finished	SAMP,10mL
21	N026225-004A,SAMP	12	1000	Unknown		10/03/2017 11:13	Finished	SAMP,10mL
22	N026225-001AMS,MS	13	1000	Unknown		10/03/2017 11:23	Finished	MS (1ppb), IWST-171002B,10
23	N026225-002AMS,MS	14	1000	Unknown		10/03/2017 11:32	Finished	MS (1ppb), IWST-171002B,10
24	N026225-003AMS,MS	15	1000	Unknown		10/03/2017 11:42	Finished	MS (1ppb), IWST-171002B,10
25	N026225-004AMS,MS	16	1000	Unknown		10/03/2017 11:51	Finished	MS (1ppb), IWST-171002B,10
26	CCV-2,CCV1,1,	17	1000	Unknown		10/03/2017 12:01	Finished	CCV @10ppb, IWST-171002A
27	CCB-2,CCB,1,	18	1000	Unknown		10/03/2017 12:10	Finished	CCB R170912A
28	N026225-001AMSD,M	19	1000	Unknown		10/03/2017 12:20	Finished	MSD (1ppb), IWST-171002B,1
29	N026225-002ADUP,D	20	1000	Unknown		10/03/2017 12:29	Finished	DUP,10mL
30	N026225-005A,SAMP	21	1000	Unknown		10/03/2017 12:39	Finished	SAMP,10mL
31	N026225-005AMS,MS	22	1000	Unknown		10/03/2017 12:48	Finished	MS (1ppb), IWST-171002B,10
32	N026225-006A,SAMP	23	1000	Unknown		10/03/2017 12:57	Finished	SAMP,10mL
33	N026225-006AMS,MS	24	1000	Unknown		10/03/2017 13:07	Finished	MS (1ppb), IWST-171002B,10
34	N026225-007A,SAMP	25	1000	Unknown		10/03/2017 13:16	Finished	SAMP,10mL
35	N026225-007AMS,MS	26	1000	Unknown		10/03/2017 13:26	Finished	MS (1ppb), IWST-171002B,10
36	N026222-001A,SAMP	28	1000	Unknown		10/03/2017 13:35	Finished	SAMP,10mL
37	N026222-002A,SAMP	29	1000	Unknown		10/03/2017 13:45	Finished	SAMP,10mL
38	CCV-3,CCV,1,	30	1000	Unknown		10/03/2017 13:54	Finished	CCV @5ppb, IWST-171002A
39	CCB-3,CCB,1,	31	1000	Unknown		10/03/2017 14:04	Finished	CCB R170912A
40	N026222-003A,SAMP	32	1000	Unknown		10/03/2017 14:13	Finished	SAMP,10mL
41	N026222-004A,SAMP	33	1000	Unknown		10/03/2017 14:23	Finished	SAMP,10mL
42	N026222-005A,SAMP	34	1000	Unknown		10/03/2017 14:32	Finished	SAMP,10mL
43	N026222-006A,SAMP	35	1000	Unknown		10/03/2017 14:42	Finished	SAMP,10mL
44	N026222-002A,SAMP	36	1000	Unknown		10/03/2017 14:51	Finished	SAMP,2>10mL
45	N026226-004A,SAMP	37	1000	Unknown		10/03/2017 15:00	Finished	SAMP,10mL
46	N026226-004AMS,MS	38	1000	Unknown		10/03/2017 15:10	Finished	MS (1ppb), IWST-171002B,10
47	N026226-001A,SAMP	39	1000	Unknown		10/03/2017 15:19	Finished	SAMP,0.05>10mL
48	N026226-002A,SAMP	40	1000	Unknown		10/03/2017 15:29	Finished	SAMP,2>10mL
49	N026226-002AMS,MS	41	1000	Unknown		10/03/2017 15:38	Finished	MS (5ppb), IWST-171002B,2>1
50	CCV-4,CCV1,1,	42	1000	Unknown		10/03/2017 15:48	Finished	CCV @10ppb, IWST-171002A
51	CCB-4,CCB,1,	43	1000	Unknown		10/03/2017 15:57	Finished	CCB R170912A
52	N026226-003A,SAMP	1	1000	Unknown		10/03/2017 16:07	Finished	SAMP,2>10mL
53	N026226-003AMS,MS	2	1000	Unknown		10/03/2017 16:19	Finished	MS (5ppb), IWST-171002B,2>1
54	N026225-004AMS,MS	3	1000	Unknown		10/03/2017 16:28	Finished	MS (1ppb), IWST-171002B,10
55	N026226-001A,SAMP	4	1000	Unknown		10/03/2017 16:37	Finished	SAMP,10mL
56	N026226-003A,SAMP	5	1000	Unknown		10/03/2017 16:47	Finished	SAMP,10mL
57	N026226-003AMS,MS	6	1000	Unknown		10/03/2017 16:56	Finished	MS (5ppb), IWST-171002B,10
58	N026226-003AMS,MS	7	1000	Unknown		10/03/2017 17:06	Finished	MS (1ppb), IWST-171002B,2>1
59	N026225-002AMS,MS	8	1000	Unknown		10/03/2017 17:15	Finished	MS (1ppb), IWST-171002B,10
60	N026226-001AMS,MS	9	1000	Unknown		10/03/2017 17:25	Finished	MS (1ppb), IWST-171002B,10

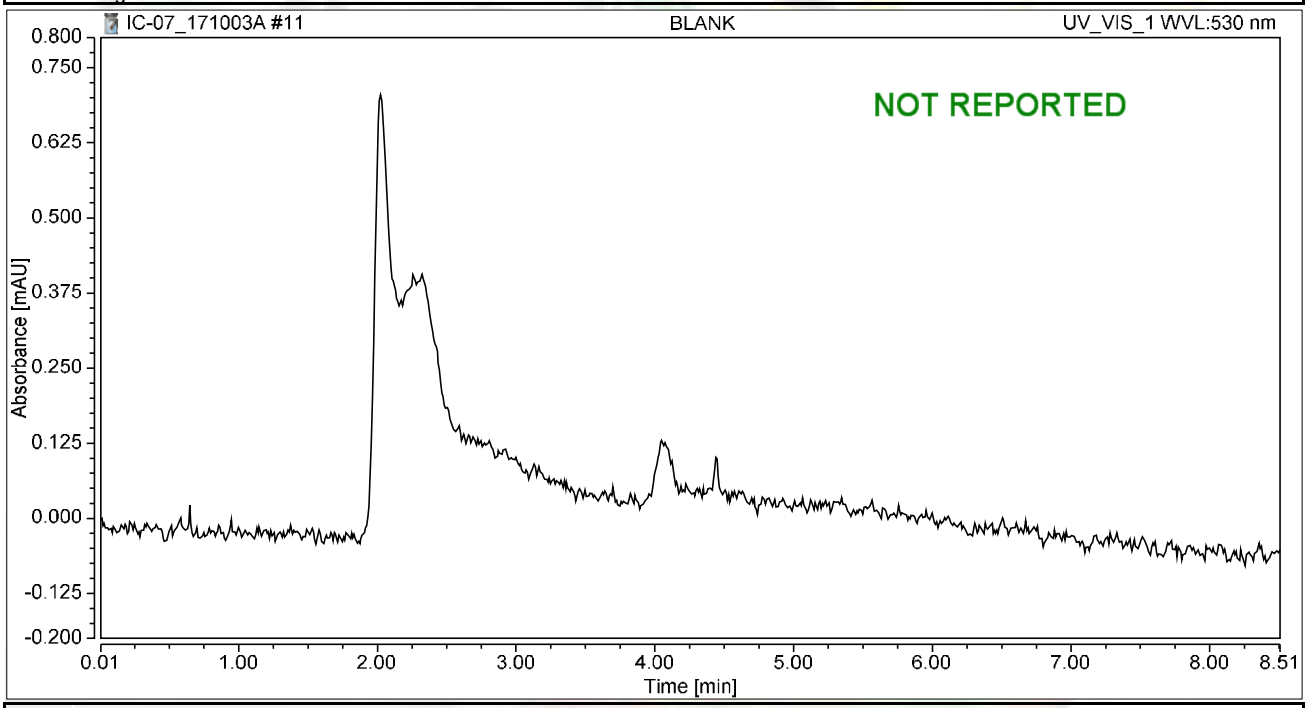
61	N026226-001A,SAMP	11	1000	Unknown		10/03/2017 17:36	Finished	CCB R170912A
62	CCV-5,CCV,1,	12	1000	Unknown		10/03/2017 17:47	Finished	CCV @5ppb, IWST-171002A
63	CCB-5,CCB,1,	13	1000	Unknown		10/03/2017 17:57	Finished	CCB R170912A
64	N026226-001AMS,MS	14	1000	Unknown		10/03/2017 18:06	Finished	MS (1ppb), IWST-171002B,2>1
65	LCS-2,LCS,1	15	1000	Unknown		10/03/2017 18:16	Finished	LCS, IWST-171002B
66	MB-2,MBLK,1	16	1000	Unknown		10/03/2017 18:25	Finished	MB R170921A
67	N026224-003A,SAMP	17	1000	Unknown		10/03/2017 18:35	Finished	SAMP,10mL
68	N026224-003AMS,MS	18	1000	Unknown		10/03/2017 18:44	Finished	MS (1ppb), IWST-171002B,10
69	N026224-003AMSD,M	19	1000	Unknown		10/03/2017 18:54	Finished	MSD (1ppb), IWST-171002B,10
70	N026224-004A,SAMP	20	1000	Unknown		10/03/2017 19:03	Finished	SAMP,10mL
71	N026224-004ADUP,D	21	1000	Unknown		10/03/2017 19:13	Finished	DUP,10mL
72	N026224-001A,SAMP	22	1000	Unknown		10/03/2017 19:22	Finished	SAMP,10mL
73	N026224-002A,SAMP	23	1000	Unknown		10/03/2017 19:32	Finished	SAMP,10mL
74	CCV-6,CCV1,1,	24	1000	Unknown		10/03/2017 19:41	Finished	CCV @10ppb, IWST-171002A
75	CCB-6,CCB,1,	25	1000	Unknown		10/03/2017 19:50	Finished	CCB R170921A
76	N026224-005A,SAMP	26	1000	Unknown		10/03/2017 20:00	Finished	SAMP,10mL
77	N026224-006A,SAMP	27	1000	Unknown		10/03/2017 20:09	Finished	SAMP,10mL
78	N026224-007A,SAMP	28	1000	Unknown		10/03/2017 20:19	Finished	SAMP,10mL
79	N026224-008A,SAMP	29	1000	Unknown		10/03/2017 20:28	Finished	SAMP,10mL
80	N026224-010A,SAMP	30	1000	Unknown		10/03/2017 20:38	Finished	SAMP,10mL
81	N026224-009A,SAMP	31	1000	Unknown		10/03/2017 20:47	Finished	SAMP,10mL
82	CCV-7,CCV,1,	32	1000	Unknown		10/03/2017 20:57	Finished	CCV @5ppb, IWST-171002A
83	CCB-7,CCB,1,	33	1000	Unknown		10/03/2017 21:06	Finished	CCB R170921A
84	SHUTDOWN	34	1000	Unknown		10/03/2017 21:16	Finished	
85	Eluent: R171002A	35	1000	Unknown		n.a.	Finished	Eluent
86	PCR: R171003B	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 09:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

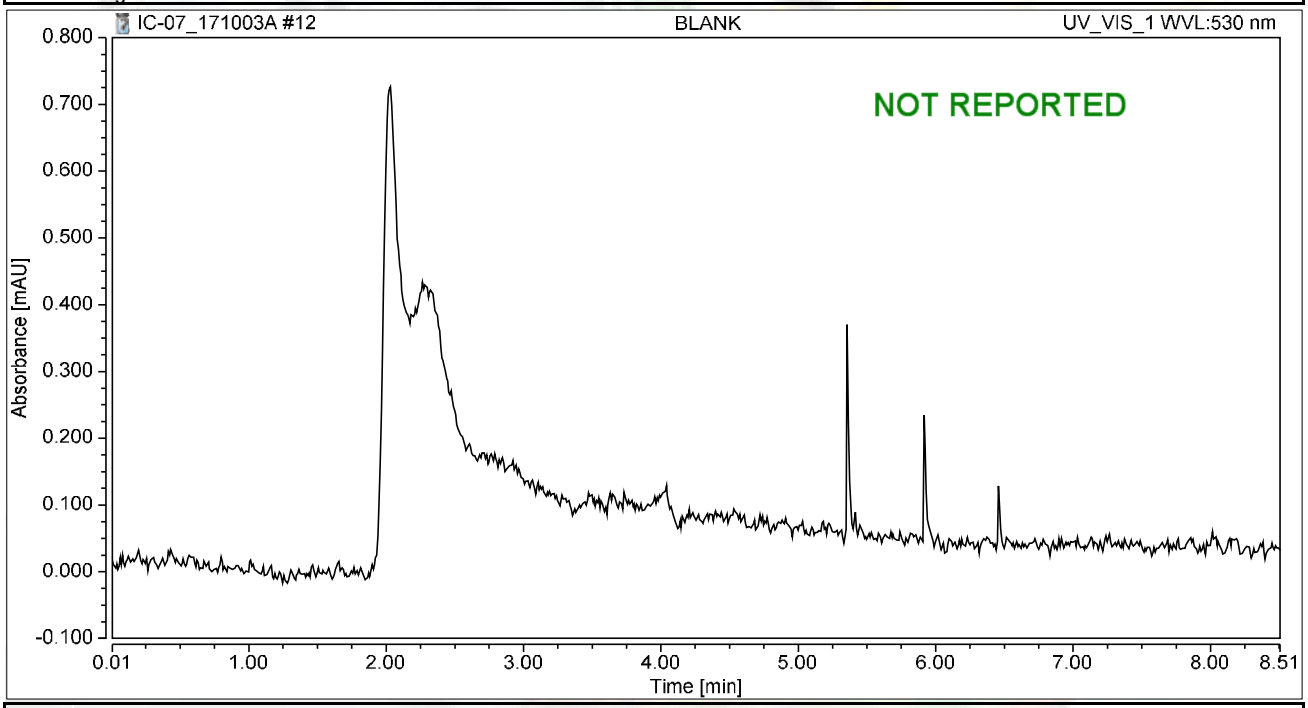
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 09:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

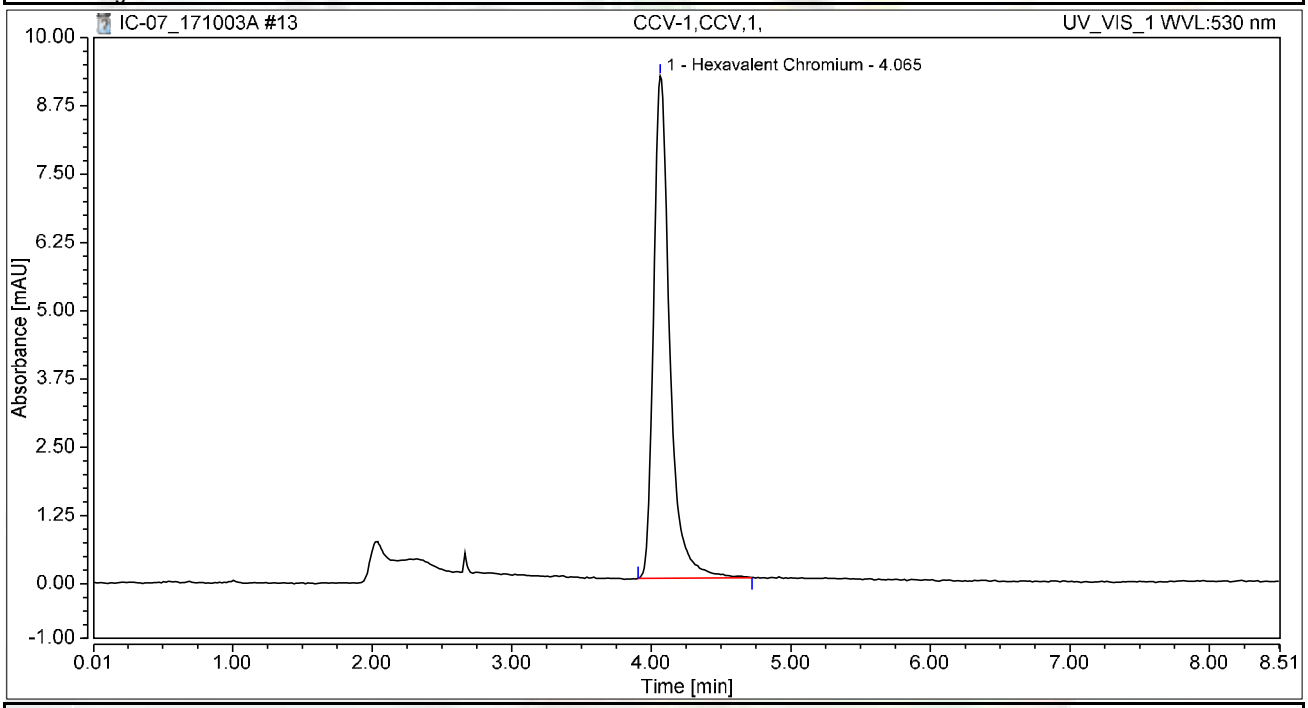
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

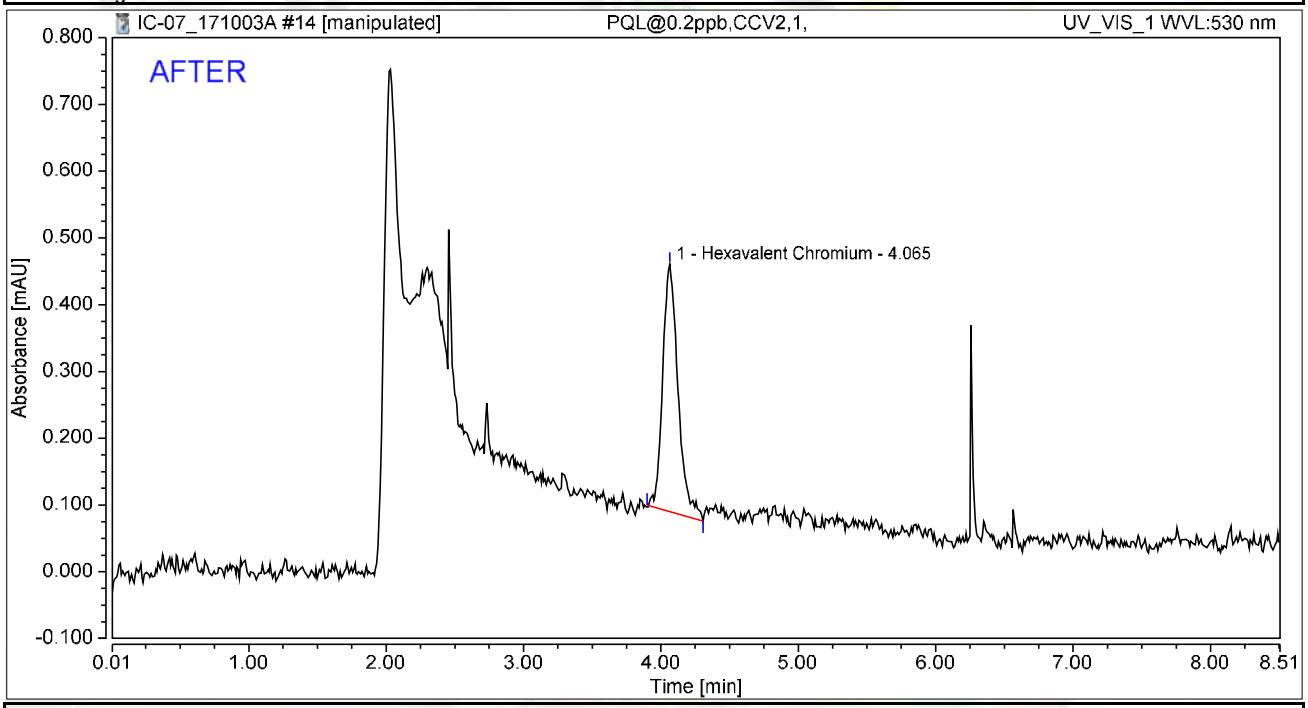
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.239	9.200	100.00	100.00	5.0112
Total:			**1.239**	**9.200**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.048	0.371	100.00	100.00	0.1932
Total:			**0.048**	**0.371**	**100.00**	**100.00**	

rba 10/8/2017

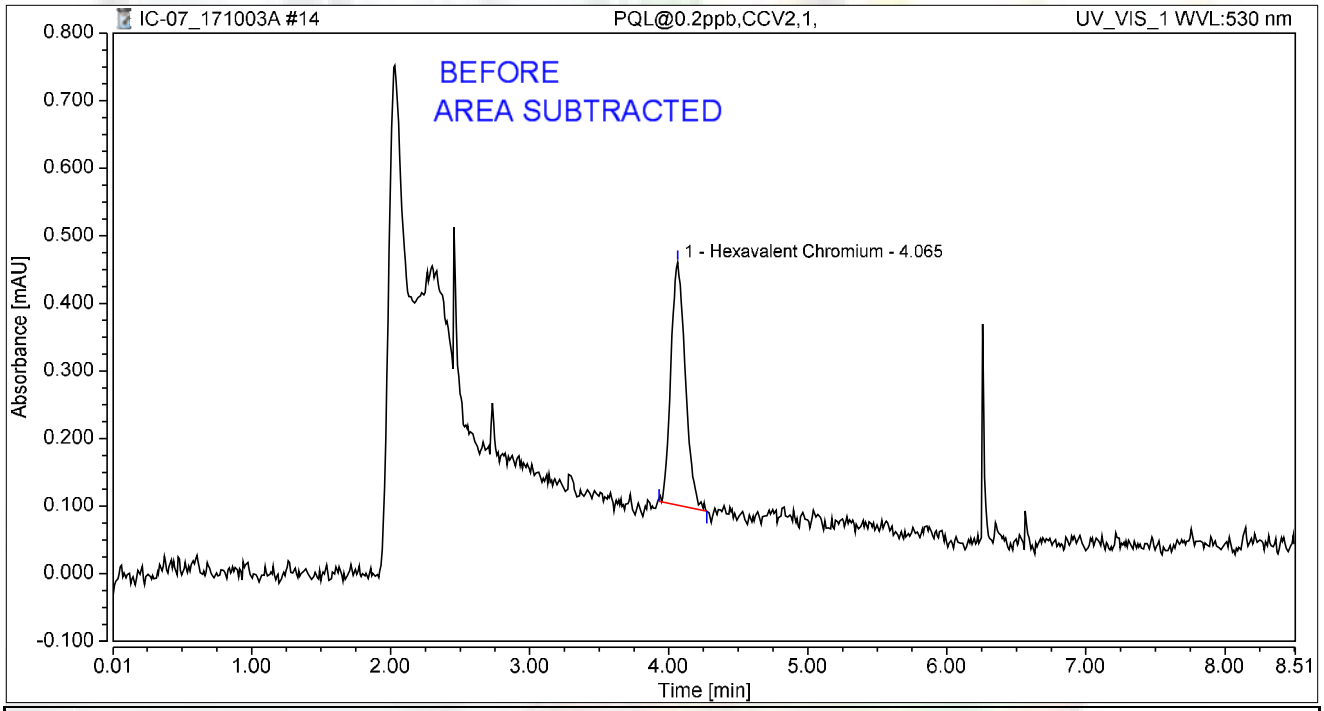
Reviewed by: Nancy 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.043	0.359	100.00	100.00	0.1746
Total:			**0.043**	**0.359**	**100.00**	**100.00**	

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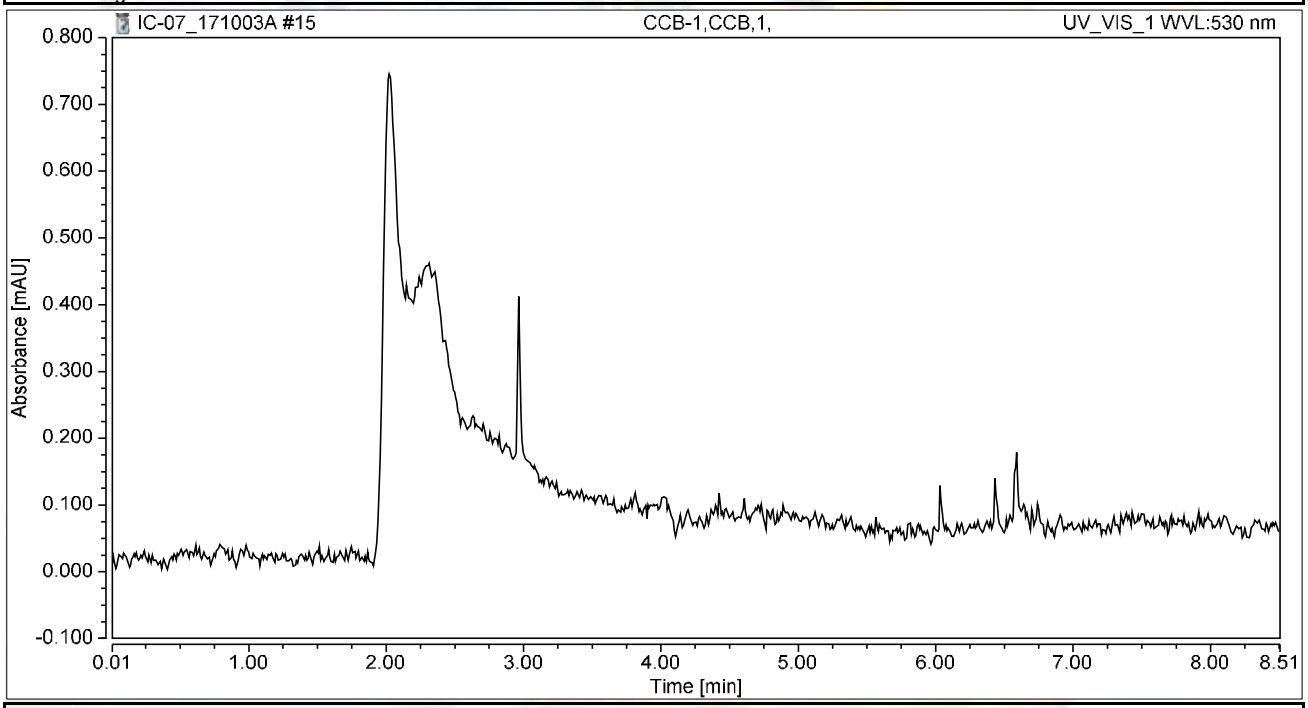
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

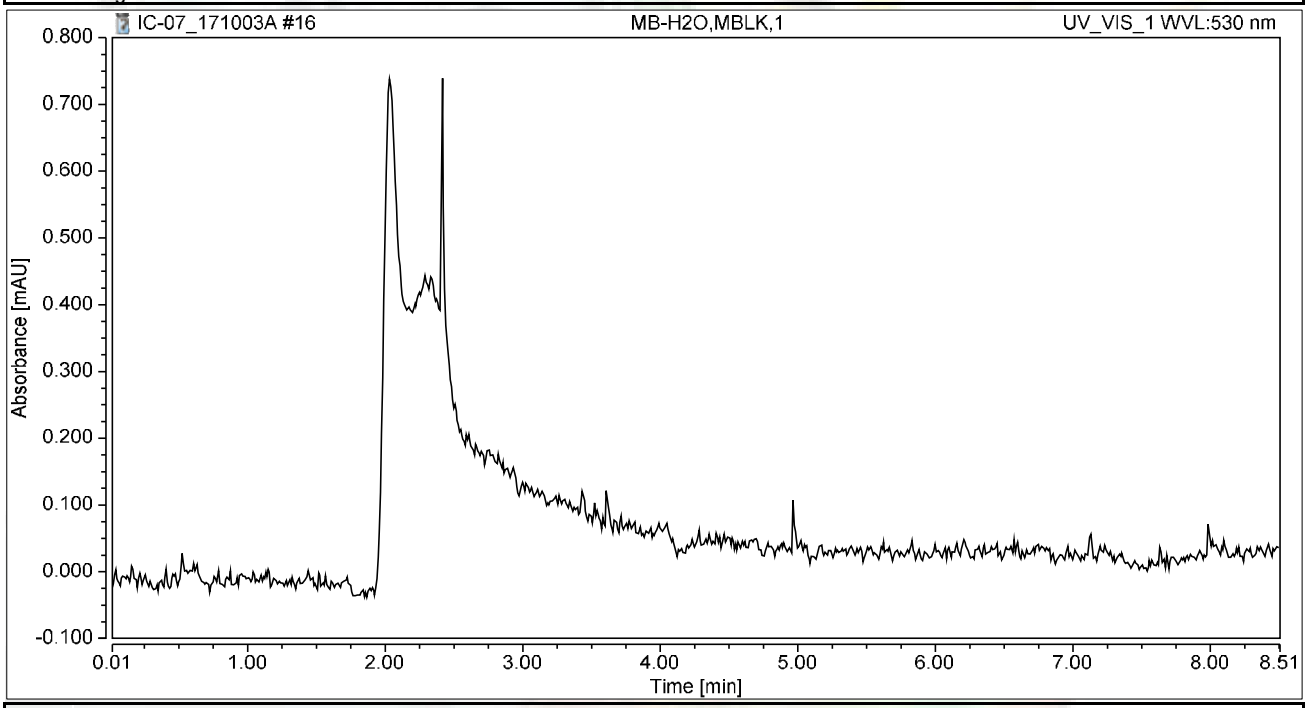
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

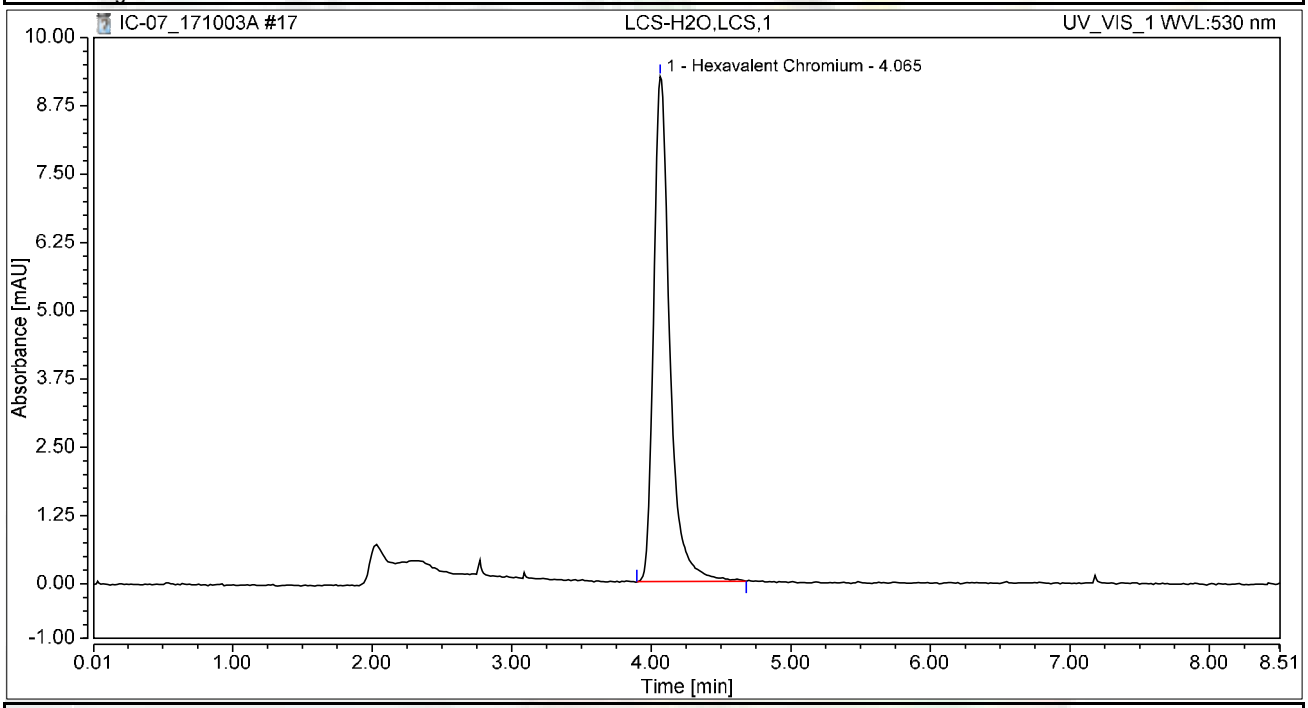
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

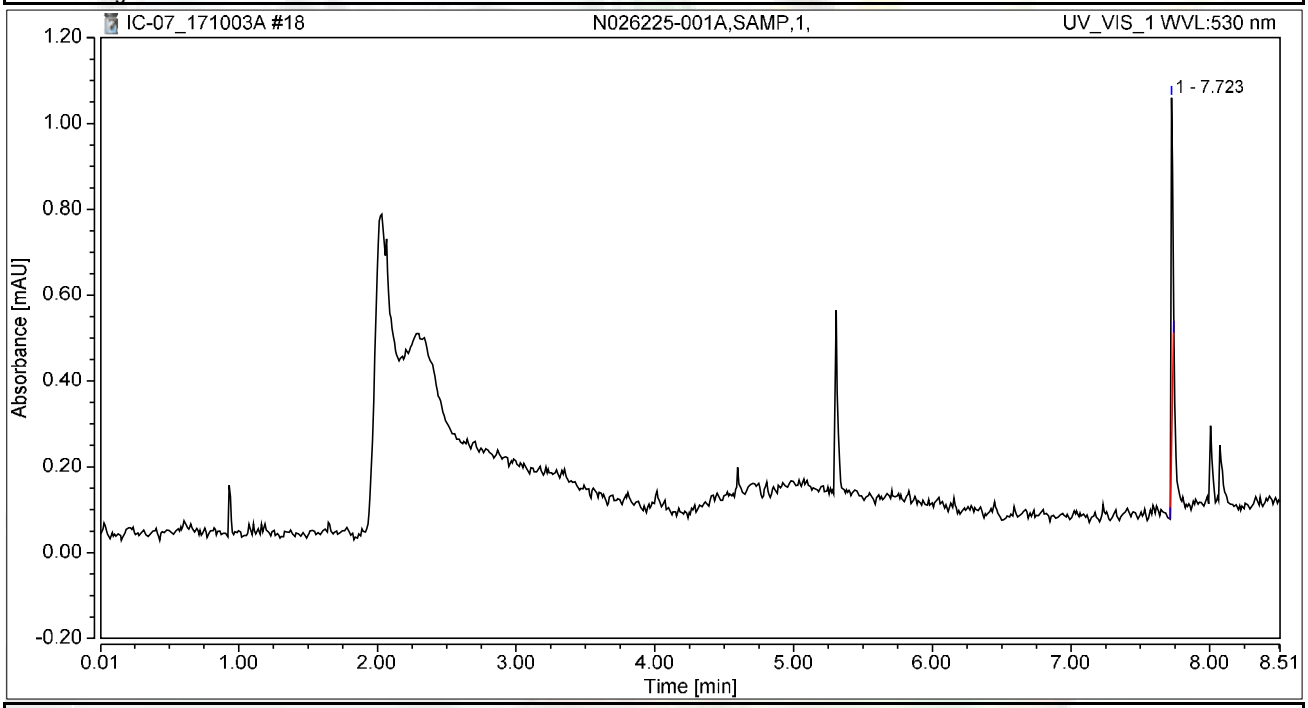
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.243	9.243	100.00	100.00	5.0301
Total:			**1.243**	**9.243**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

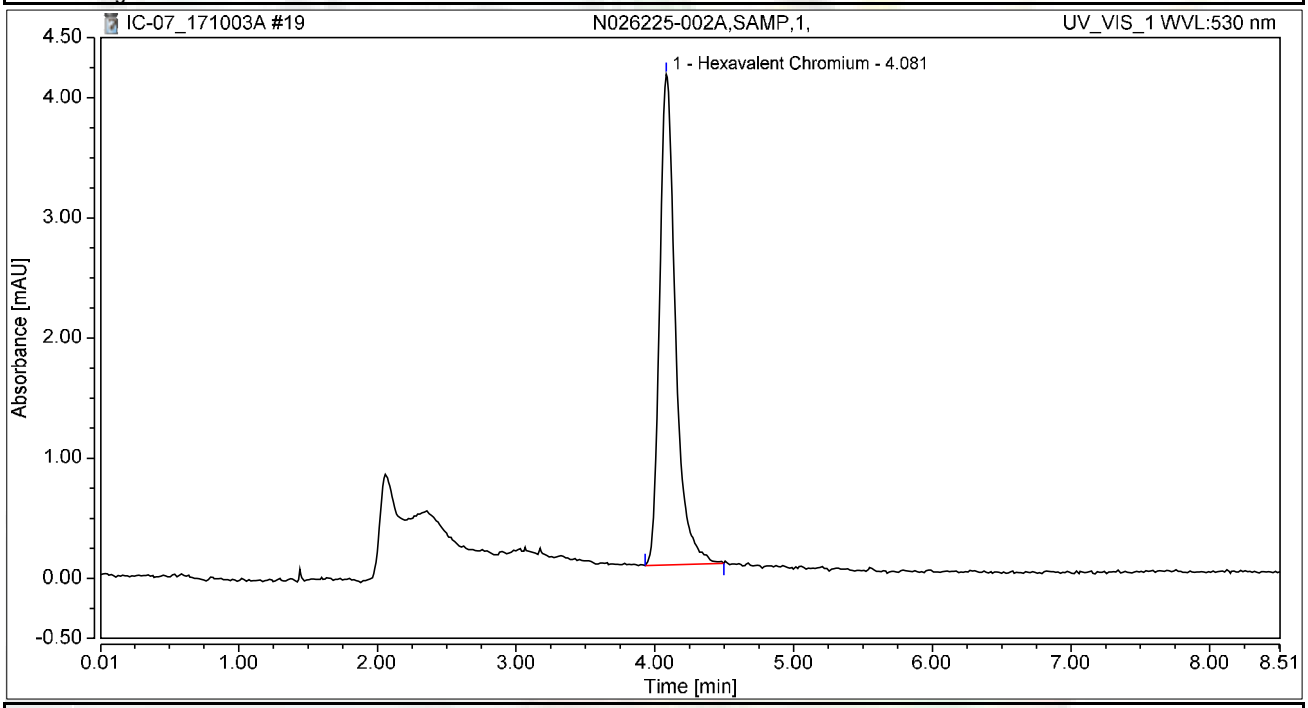
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.723	0.011	0.828	100.00	100.00	n.a.
Total:			**0.011**	**0.828**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 10:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

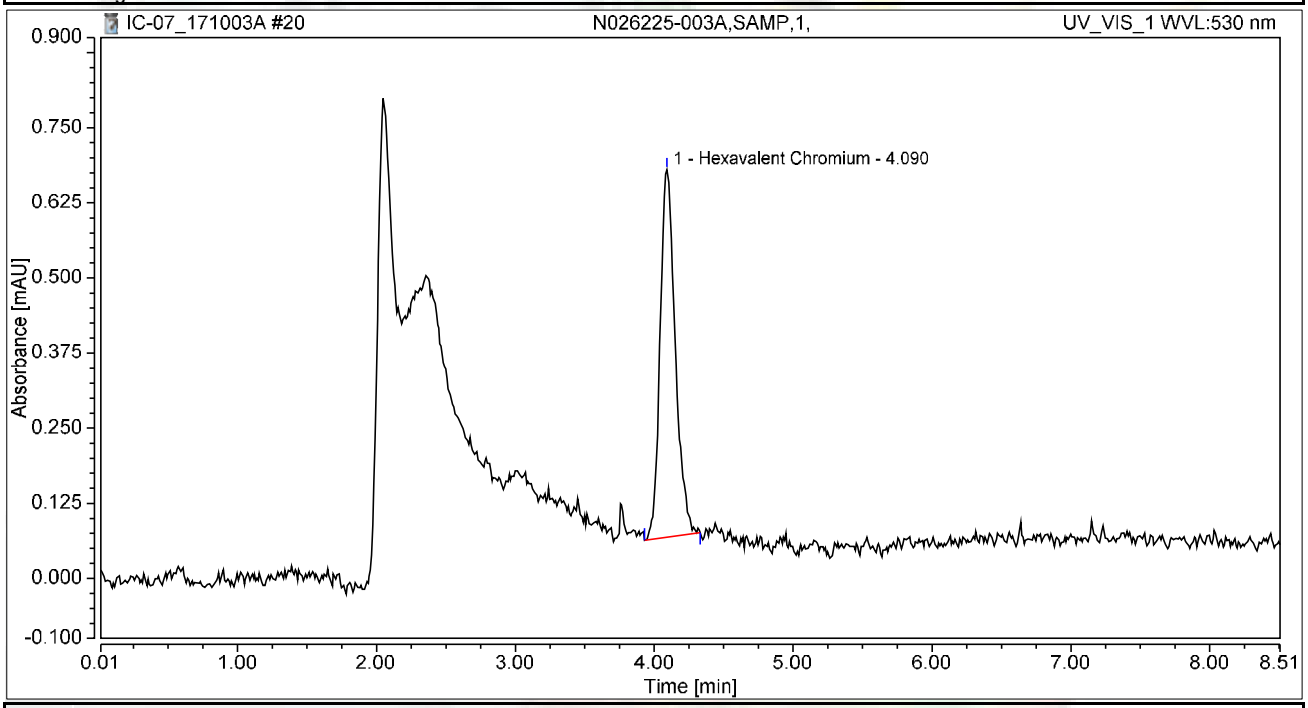
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	0.545	4.082	100.00	100.00	2.2028
Total:			**0.545**	**4.082**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-003A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 11:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

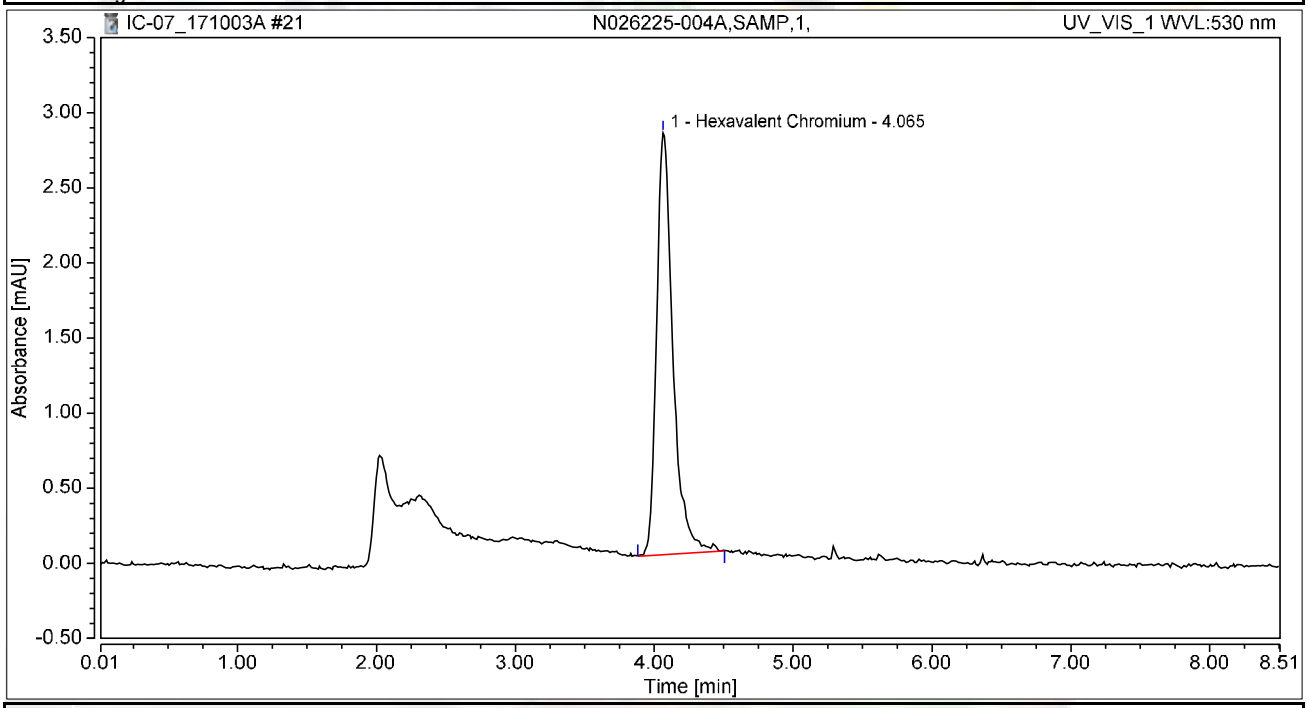
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.090	0.077	0.611	100.00	100.00	0.3129
Total:			**0.077**	**0.611**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-004A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 11:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

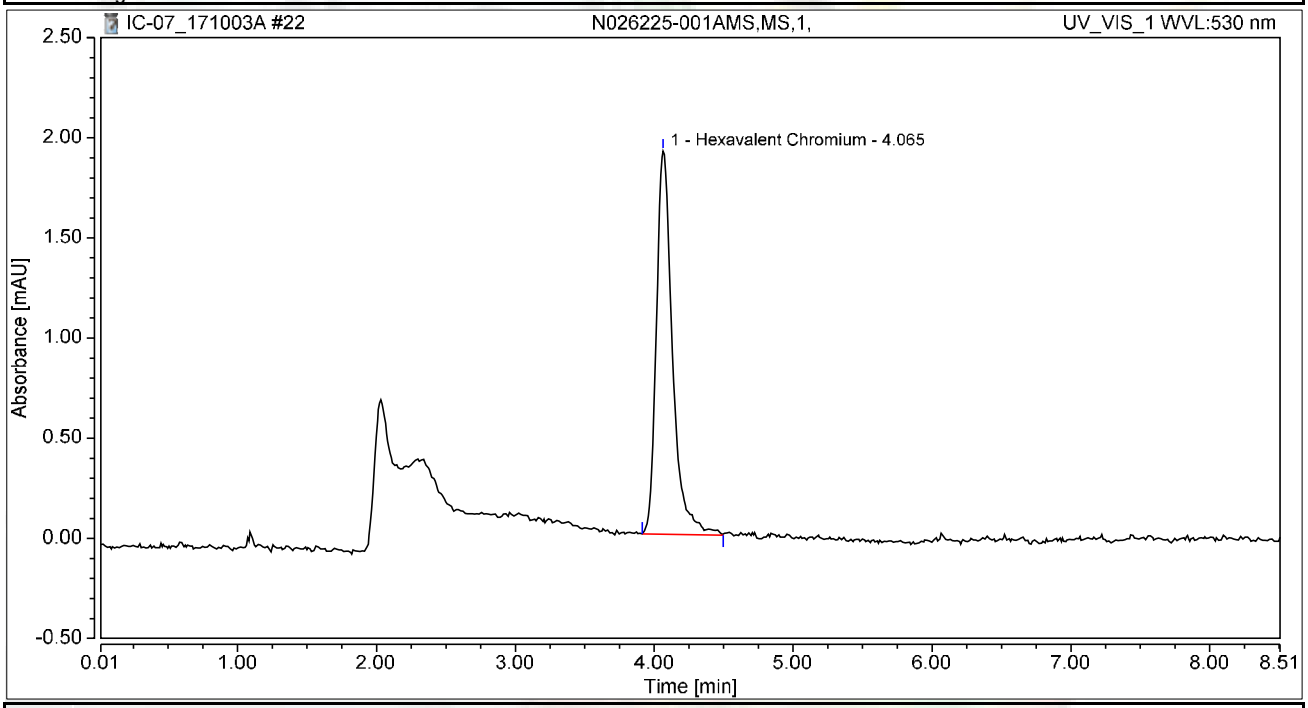
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.383	2.810	100.00	100.00	1.5495
Total:			**0.383**	**2.810**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-001AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 11:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

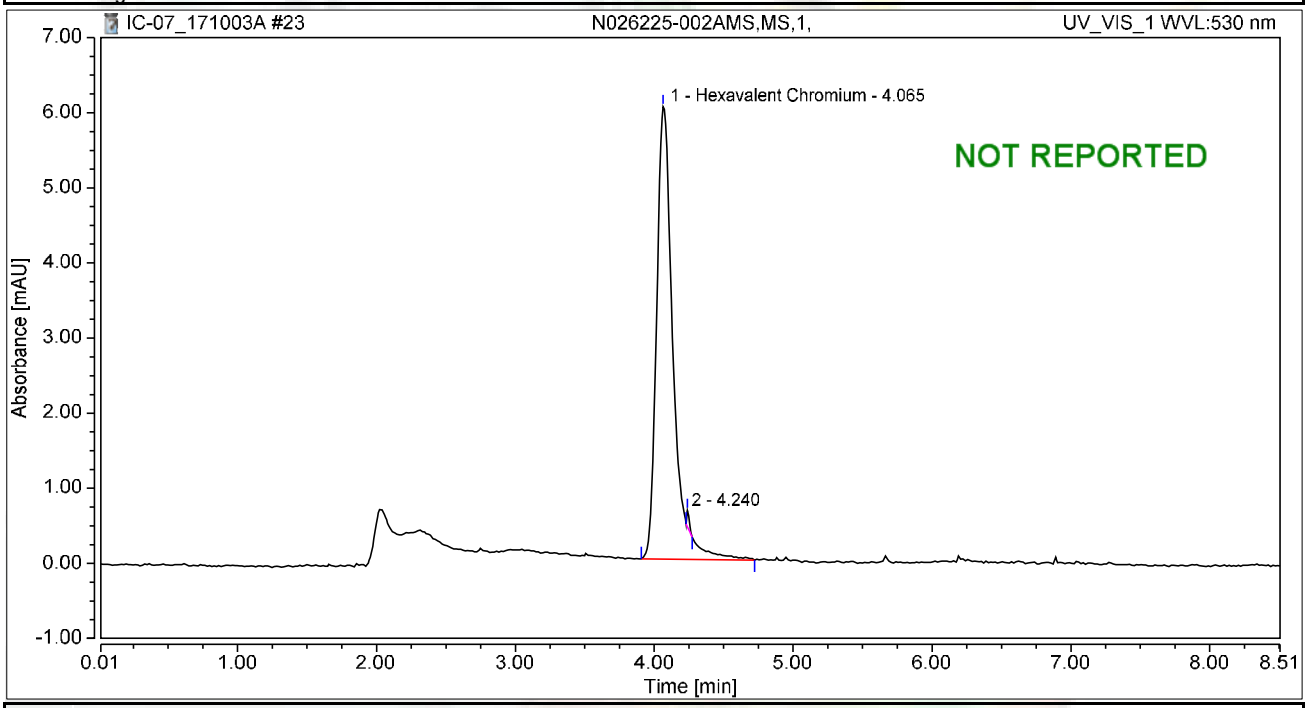
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.257	1.914	100.00	100.00	1.0414
Total:			**0.257**	**1.914**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-002AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 11:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

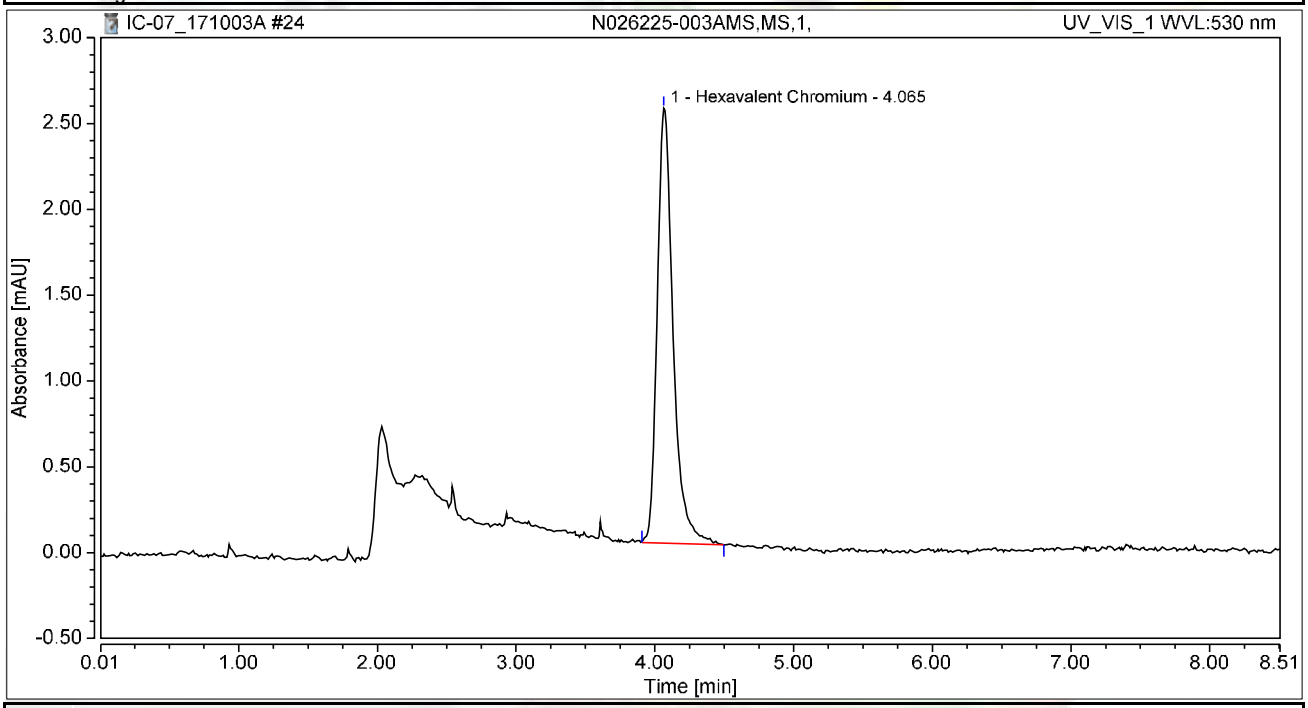
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.826	6.024	99.49	96.57	3.3396
2		4.240	0.004	0.214	0.51	3.43	n.a.
Total:			**0.830**	**6.237**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-003AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

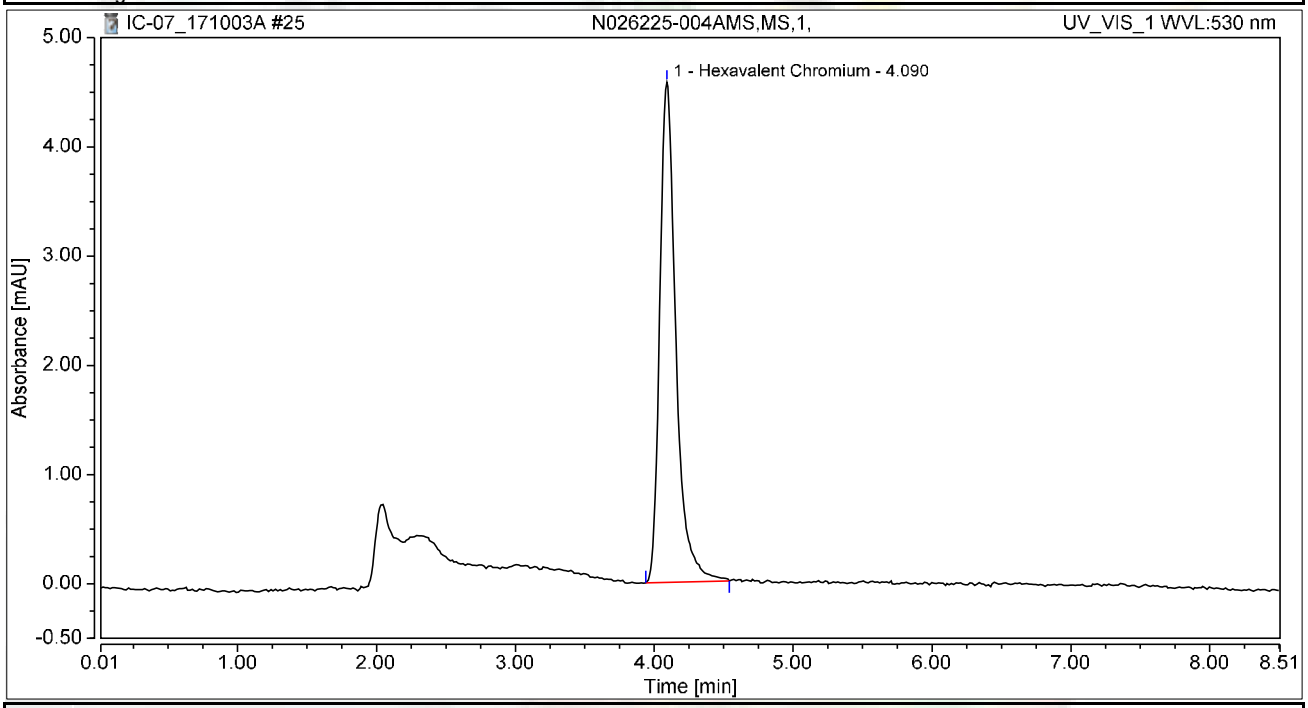
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.337	2.534	100.00	100.00	1.3637
Total:			**0.337**	**2.534**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-004AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 11:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

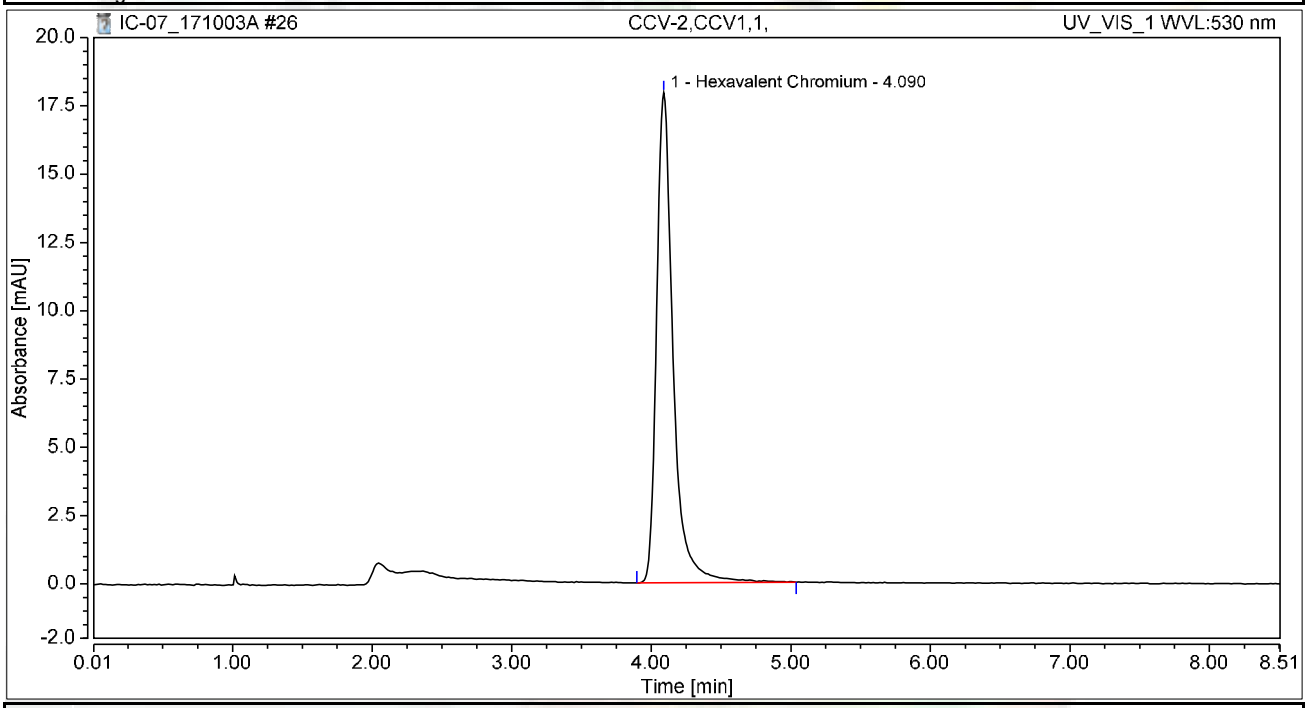
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.090	0.617	4.578	100.00	100.00	2.4963
Total:			**0.617**	**4.578**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

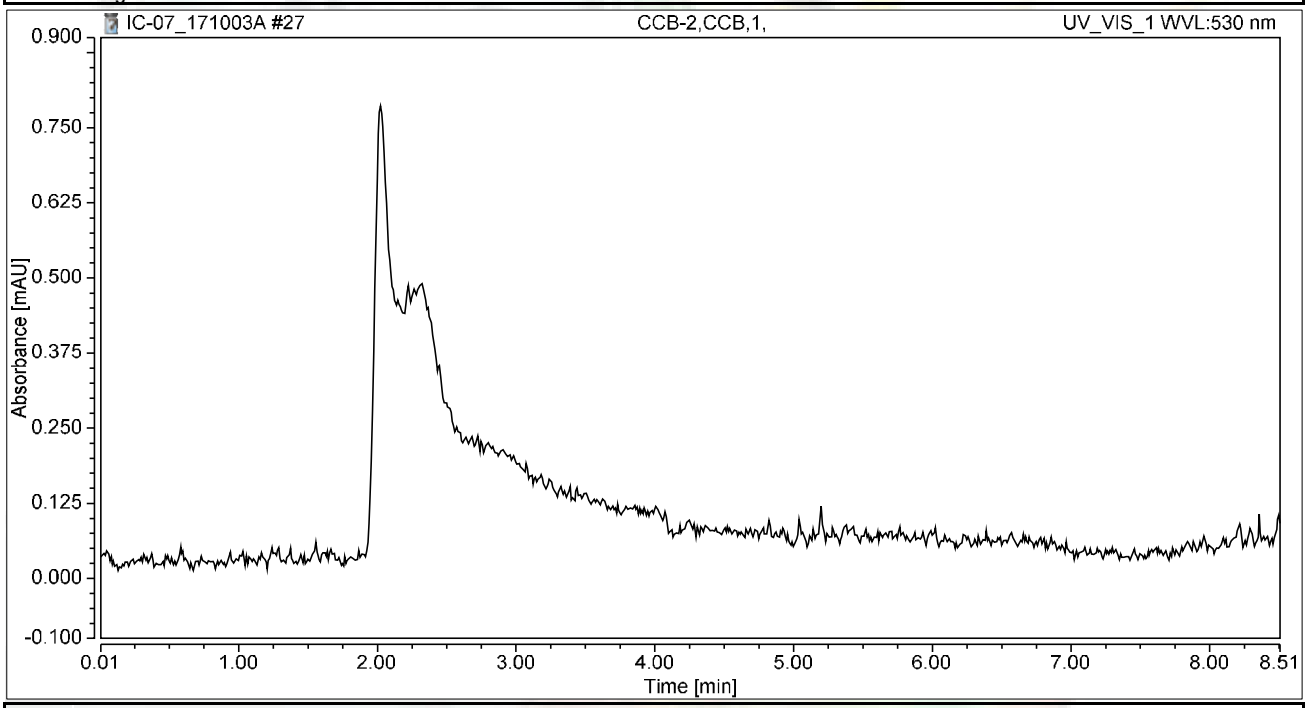
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.090	2.466	17.941	100.00	100.00	9.9755
Total:			**2.466**	**17.941**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

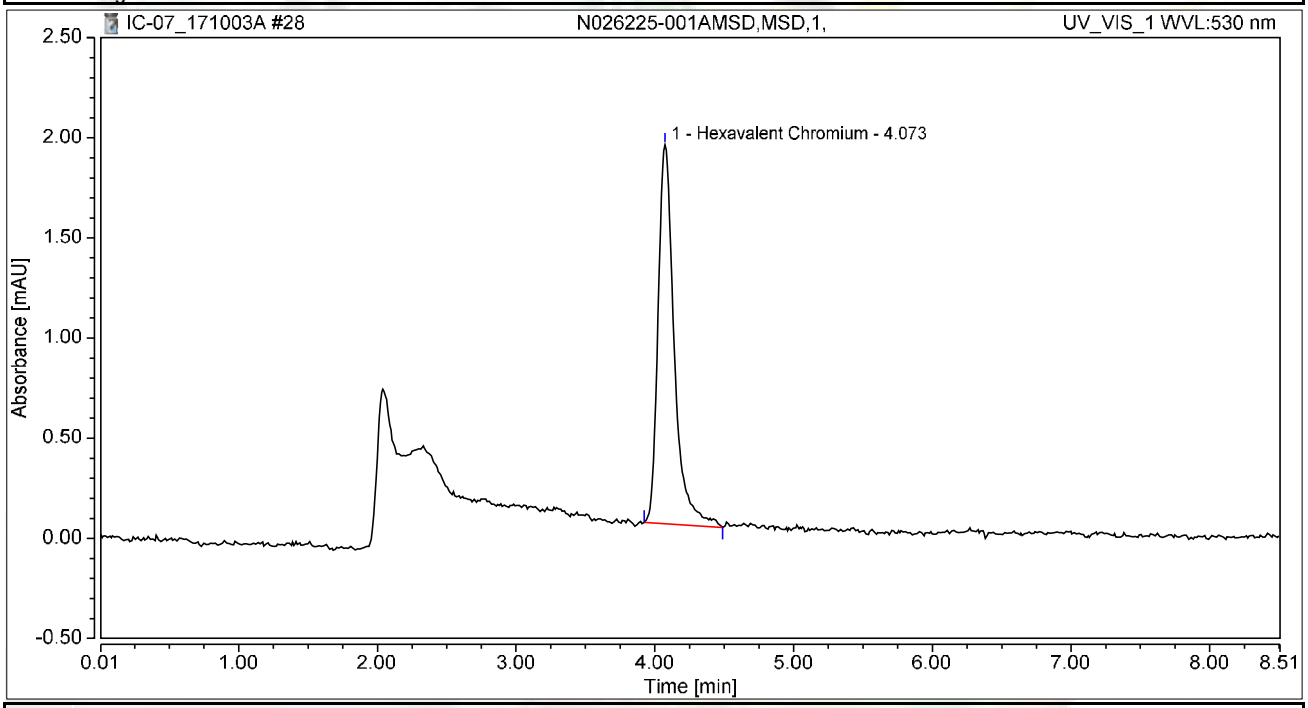
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-001AMSD,MSD,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

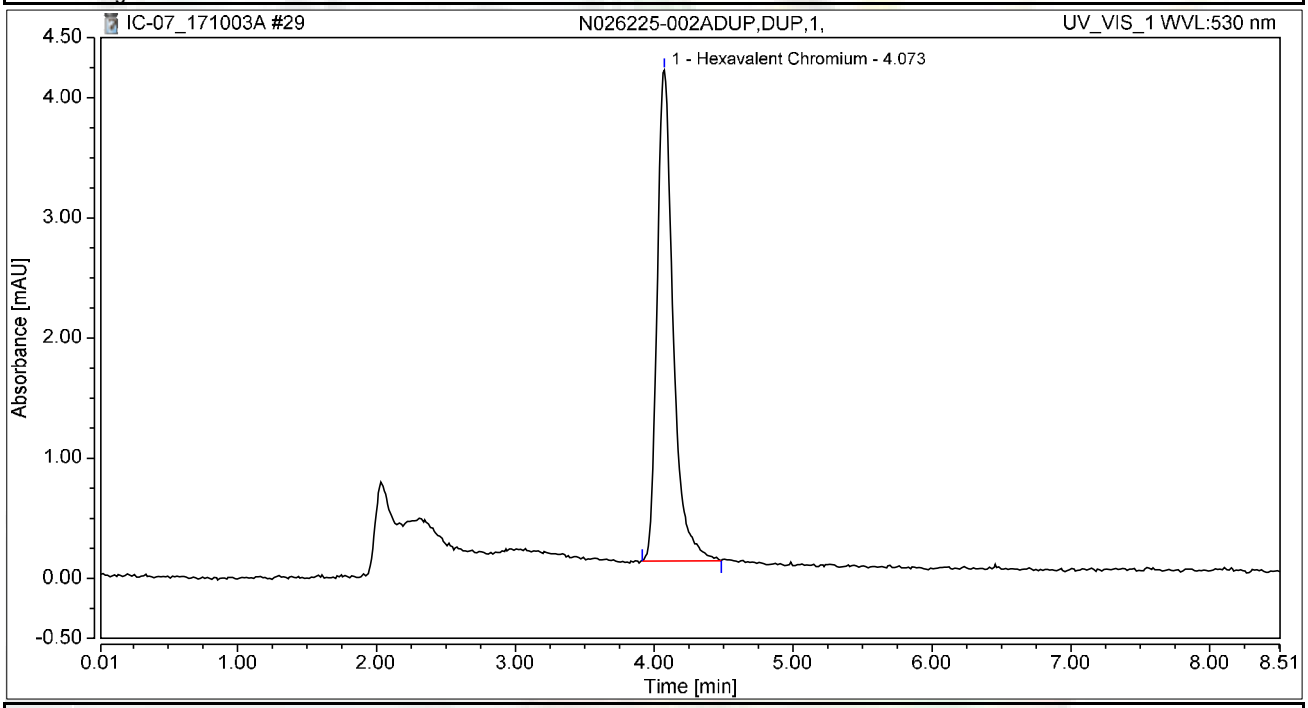
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.255	1.891	100.00	100.00	1.0331
Total:			**0.255**	**1.891**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-002ADUP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

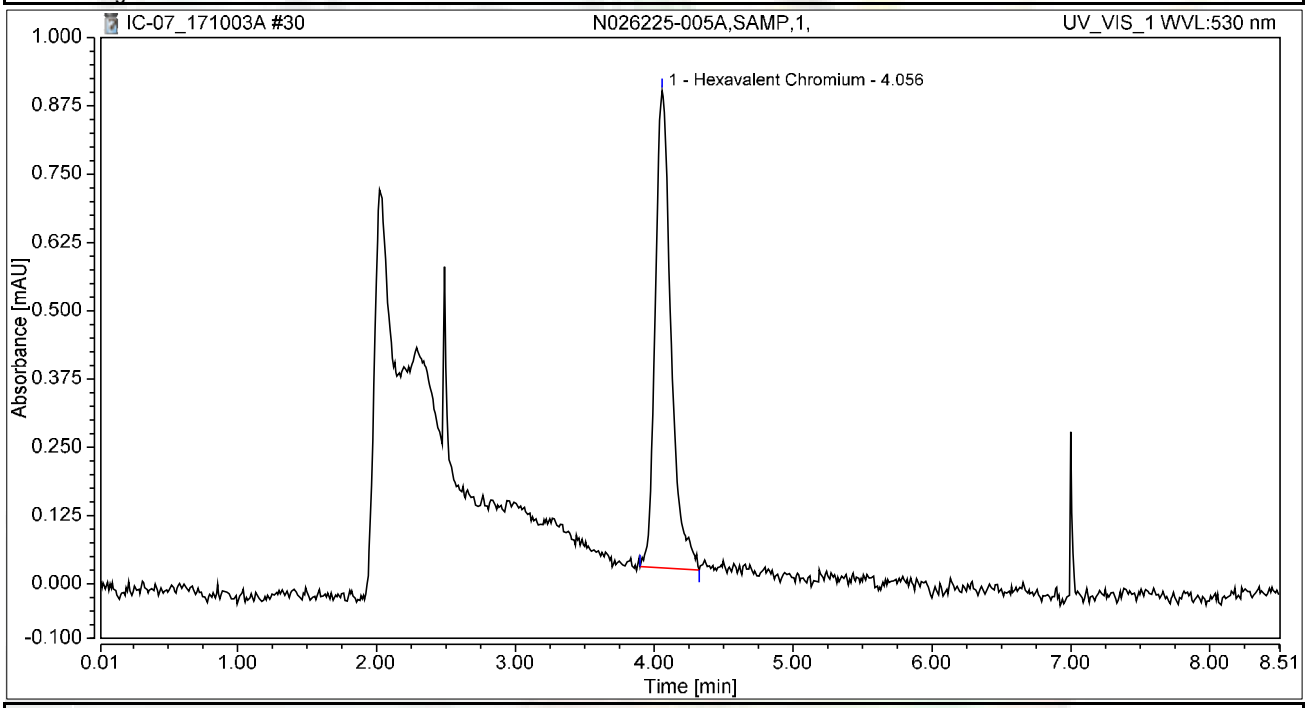
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.547	4.086	100.00	100.00	2.2144
Total:			**0.547**	**4.086**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-005A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

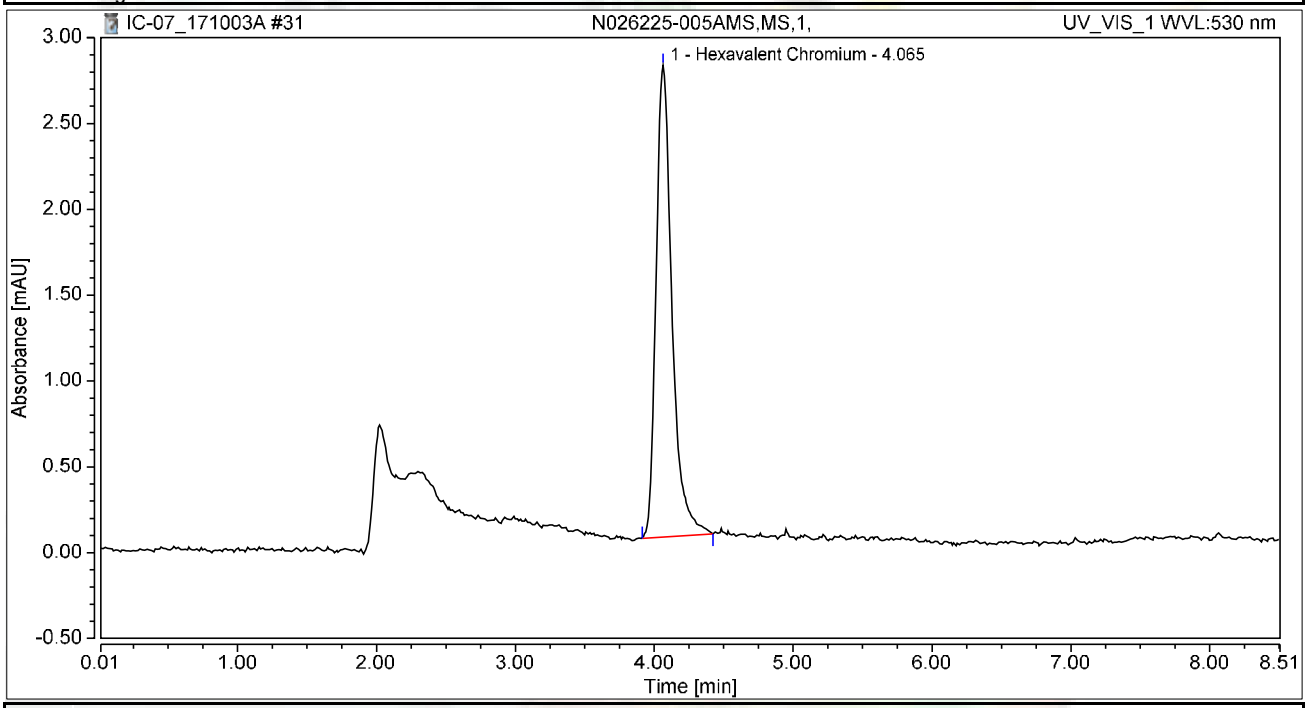
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.115	0.874	100.00	100.00	0.4655
Total:			**0.115**	**0.874**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-005AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

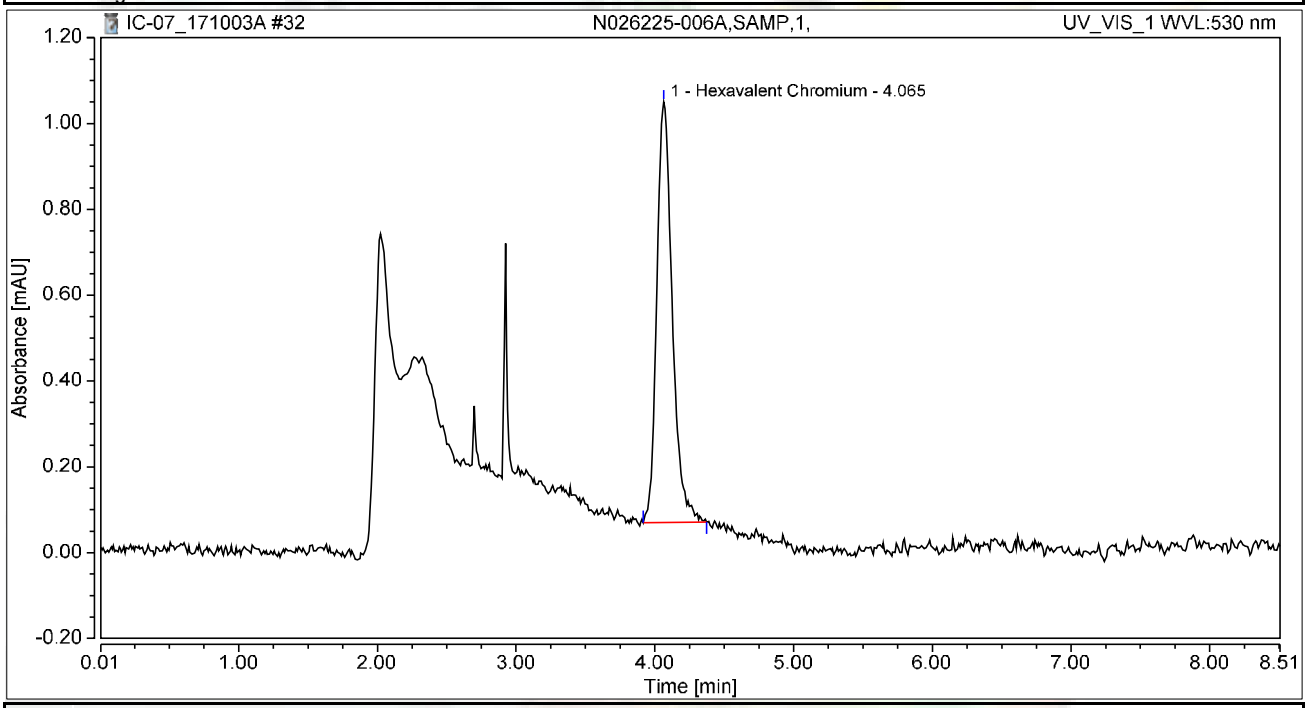
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.365	2.747	100.00	100.00	1.4756
Total:			**0.365**	**2.747**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 12:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

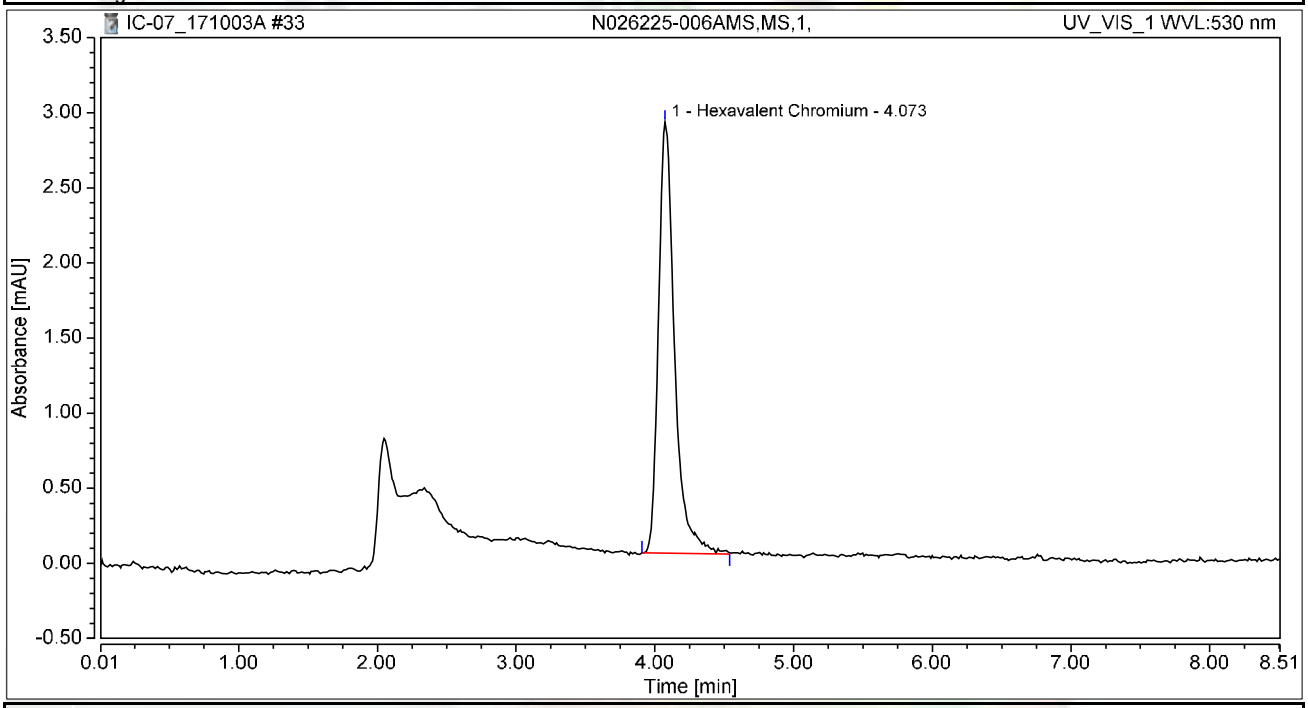
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.127	0.980	100.00	100.00	0.5119
Total:			**0.127**	**0.980**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-006AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 13:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

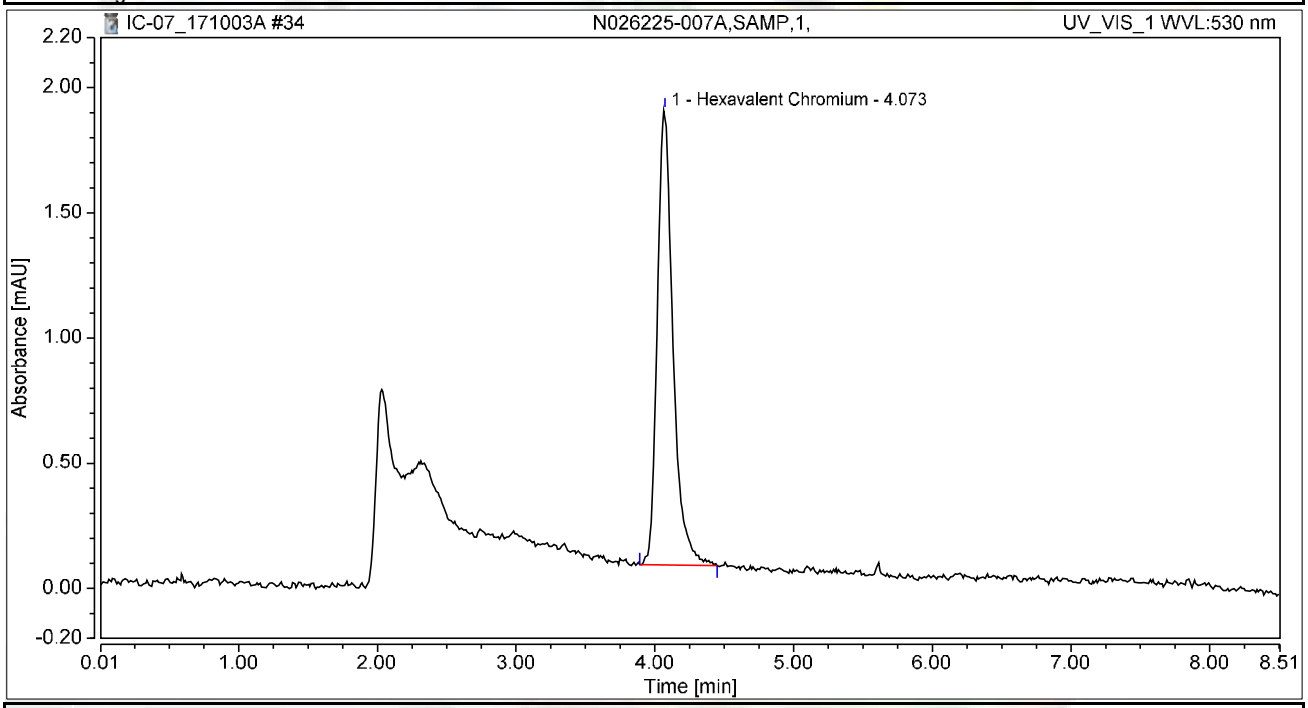
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.387	2.869	100.00	100.00	1.5653
Total:			**0.387**	**2.869**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 13:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

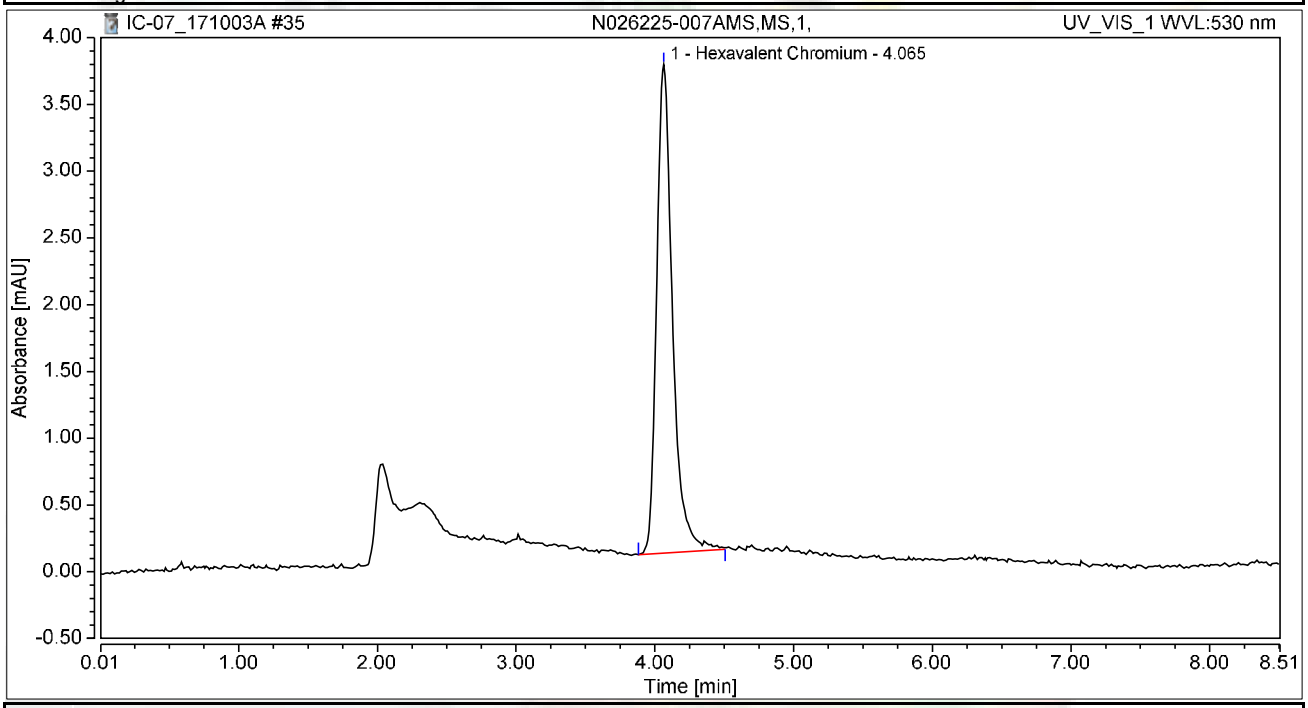
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.239	1.817	100.00	100.00	0.9668
Total:			**0.239**	**1.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026225-007AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 13:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

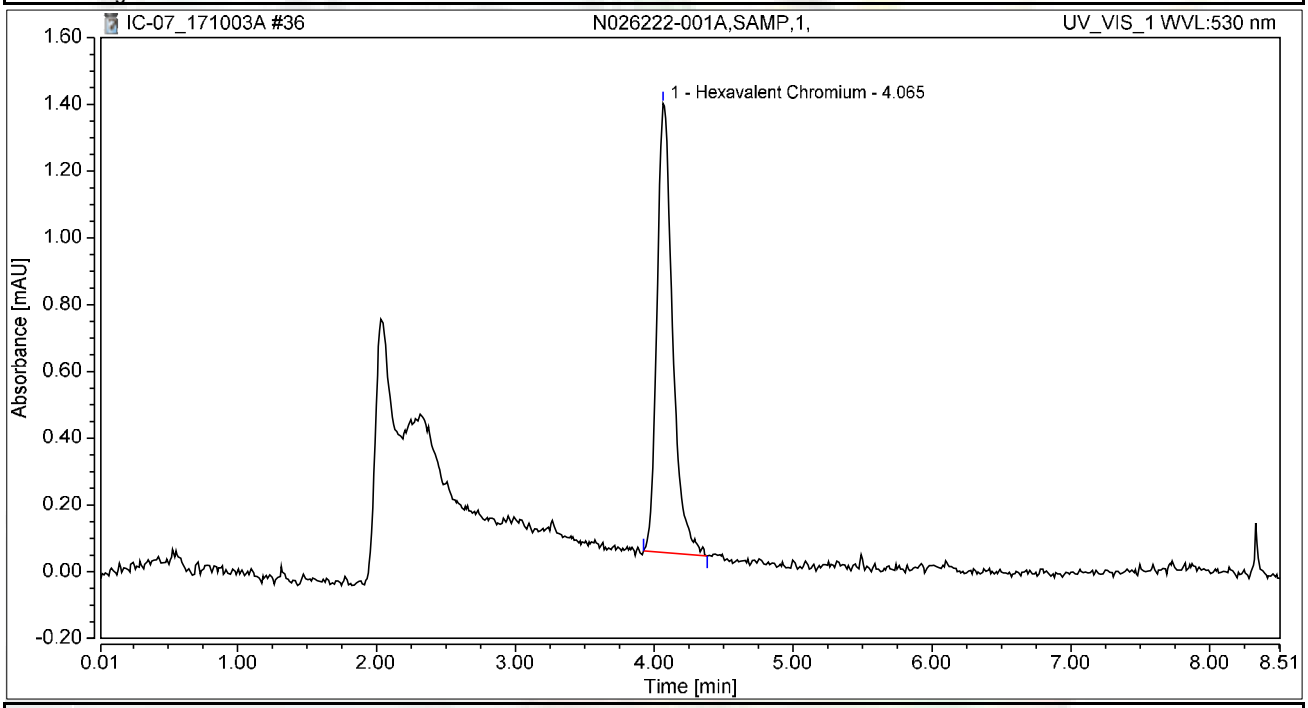
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.485	3.659	100.00	100.00	1.9608
Total:			**0.485**	**3.659**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 13:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

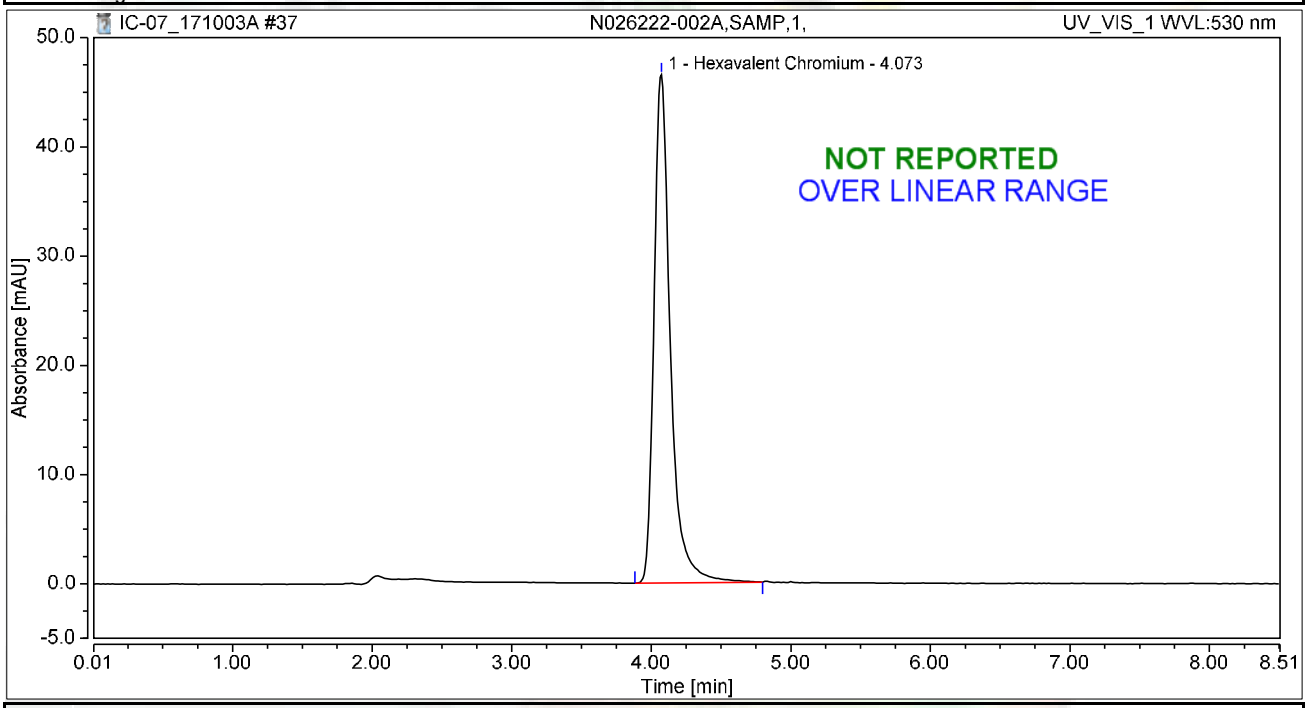
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.175	1.345	100.00	100.00	0.7097
Total:			**0.175**	**1.345**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 13:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

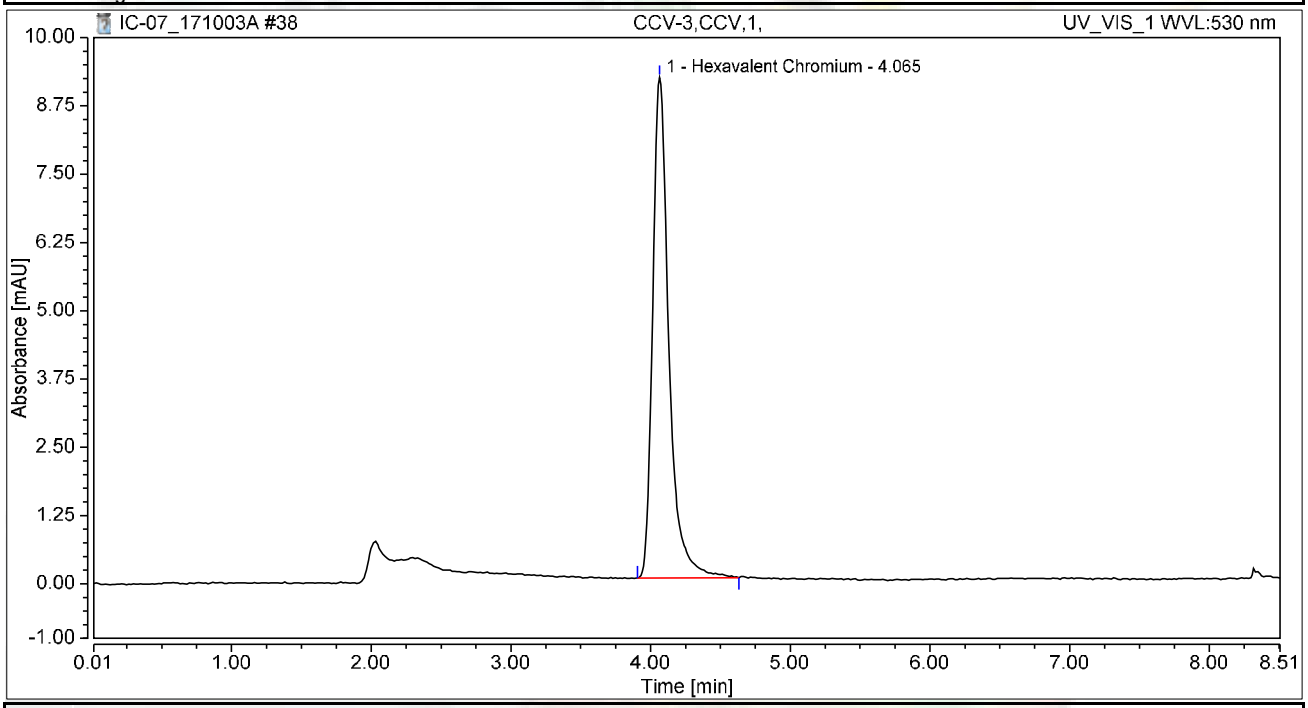
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	6.323	46.533	100.00	100.00	25.5773
Total:			**6.323**	**46.533**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 13:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

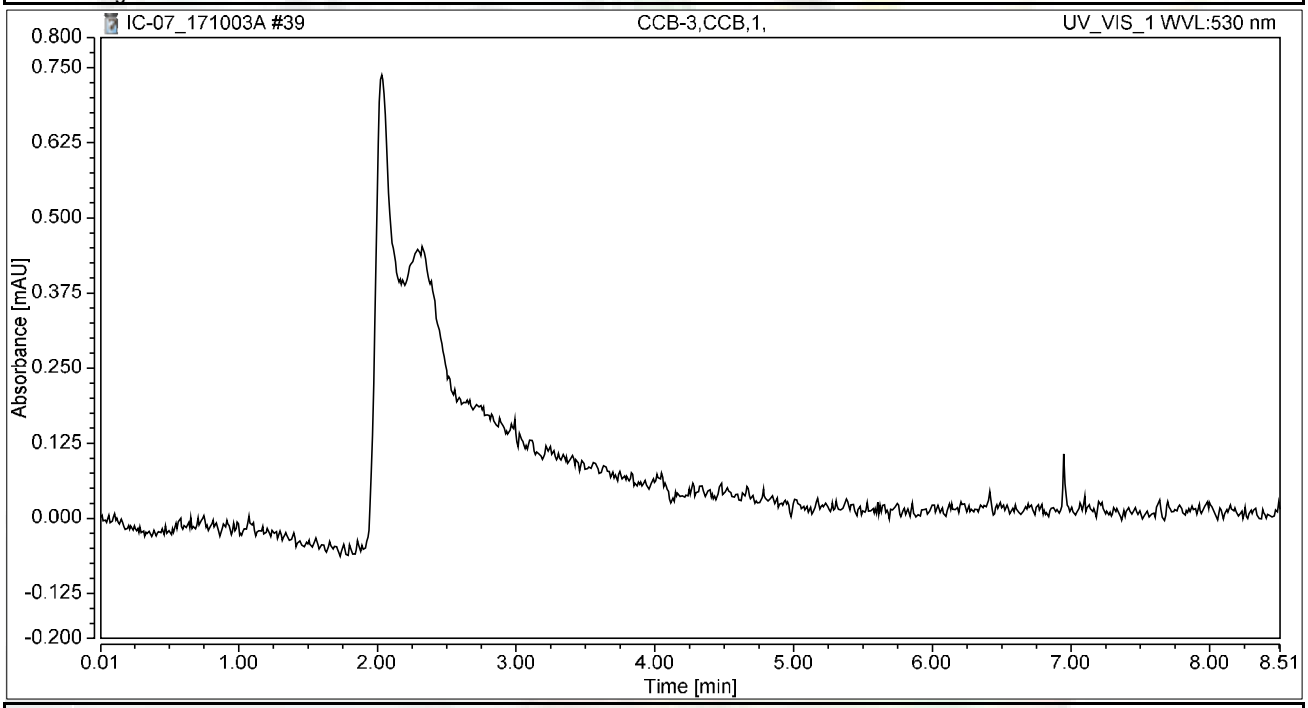
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.230	9.164	100.00	100.00	4.9746
Total:			**1.230**	**9.164**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 14:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

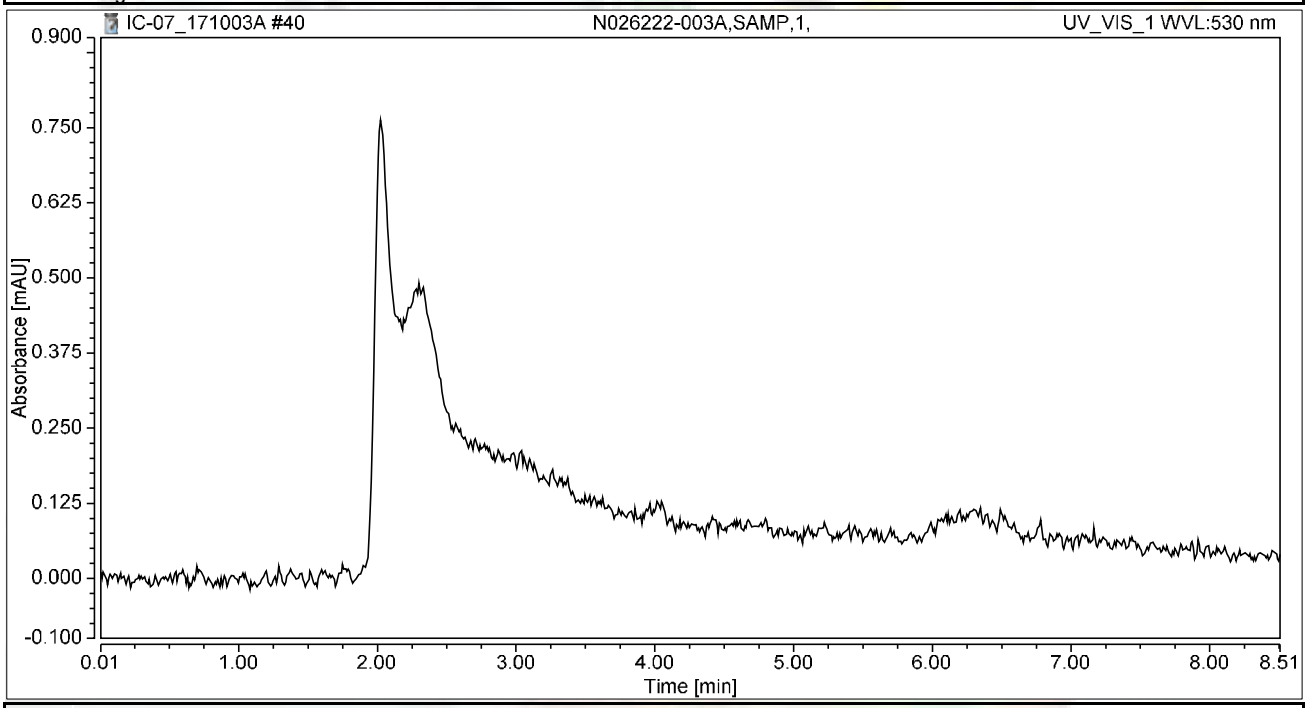
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 14:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

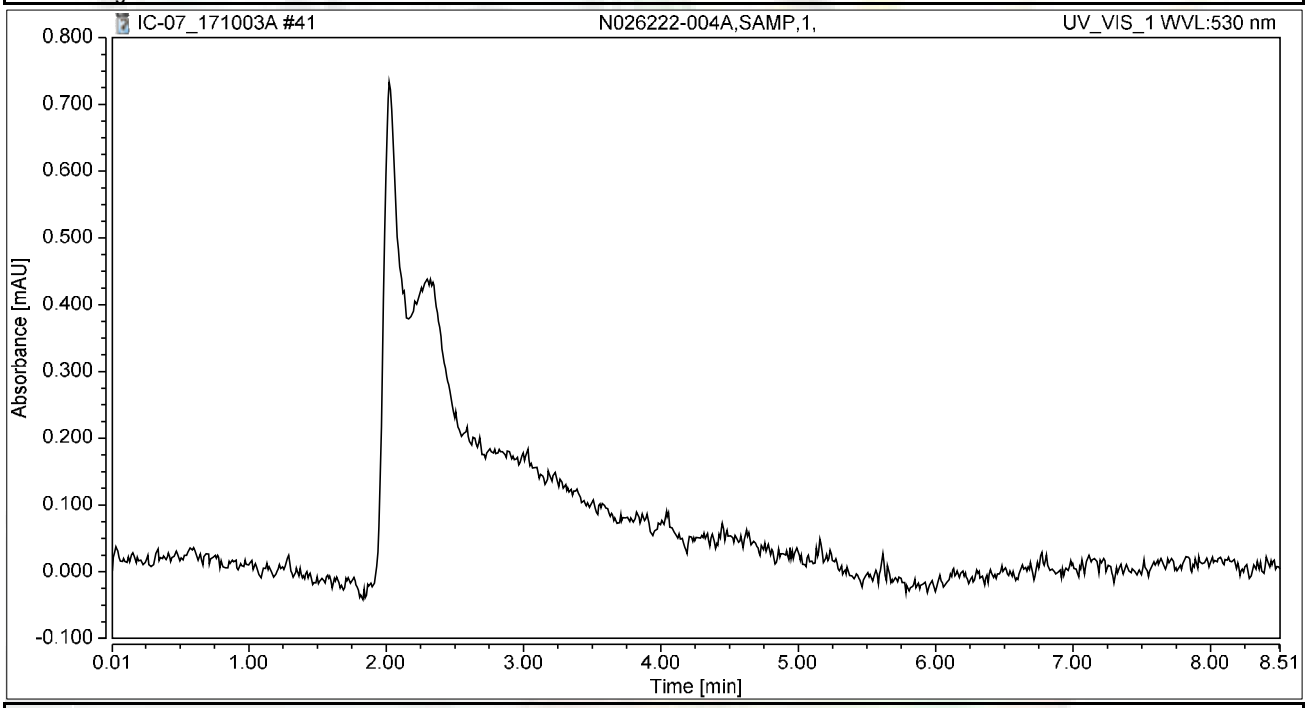
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 14:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

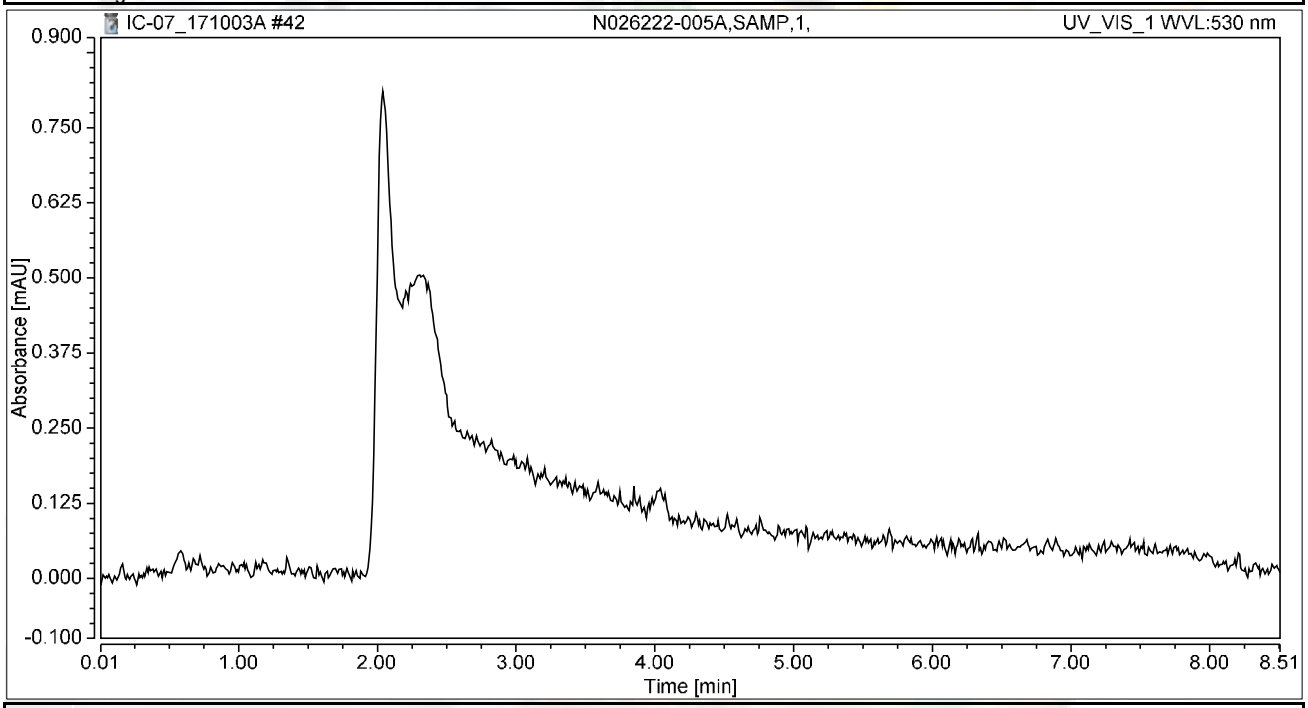
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 14:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

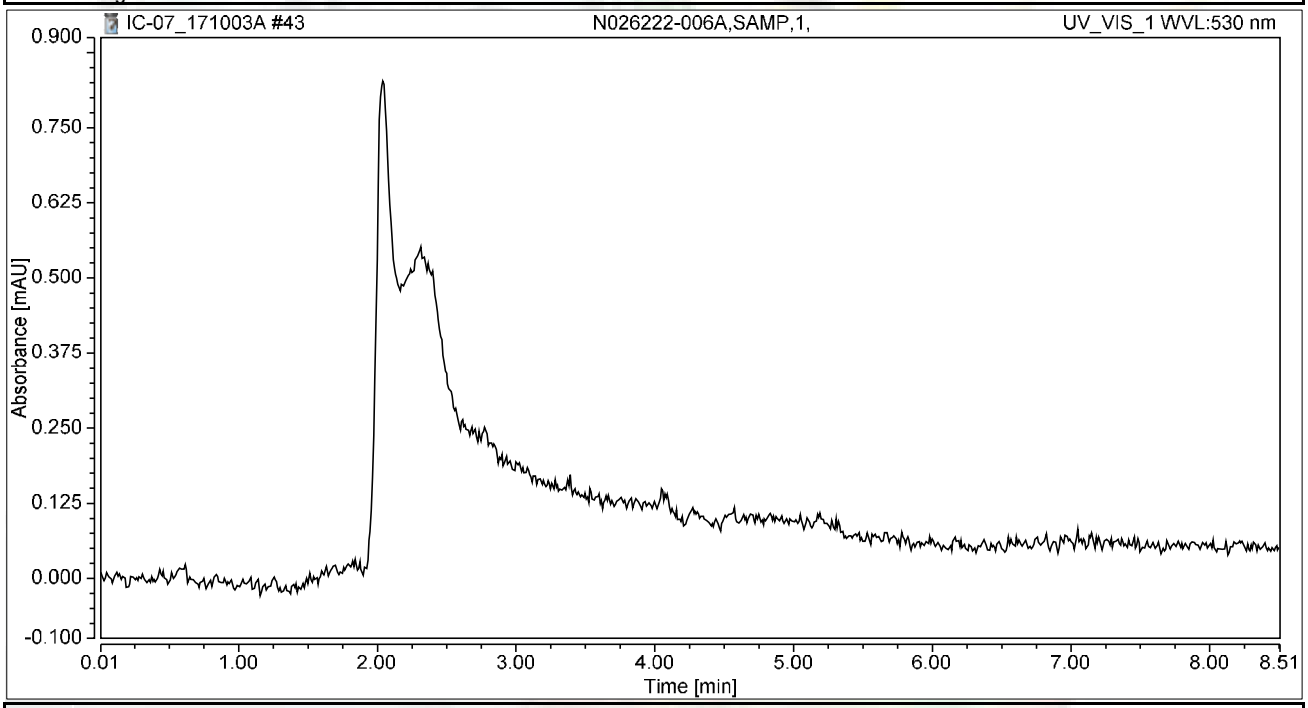
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-006A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 14:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

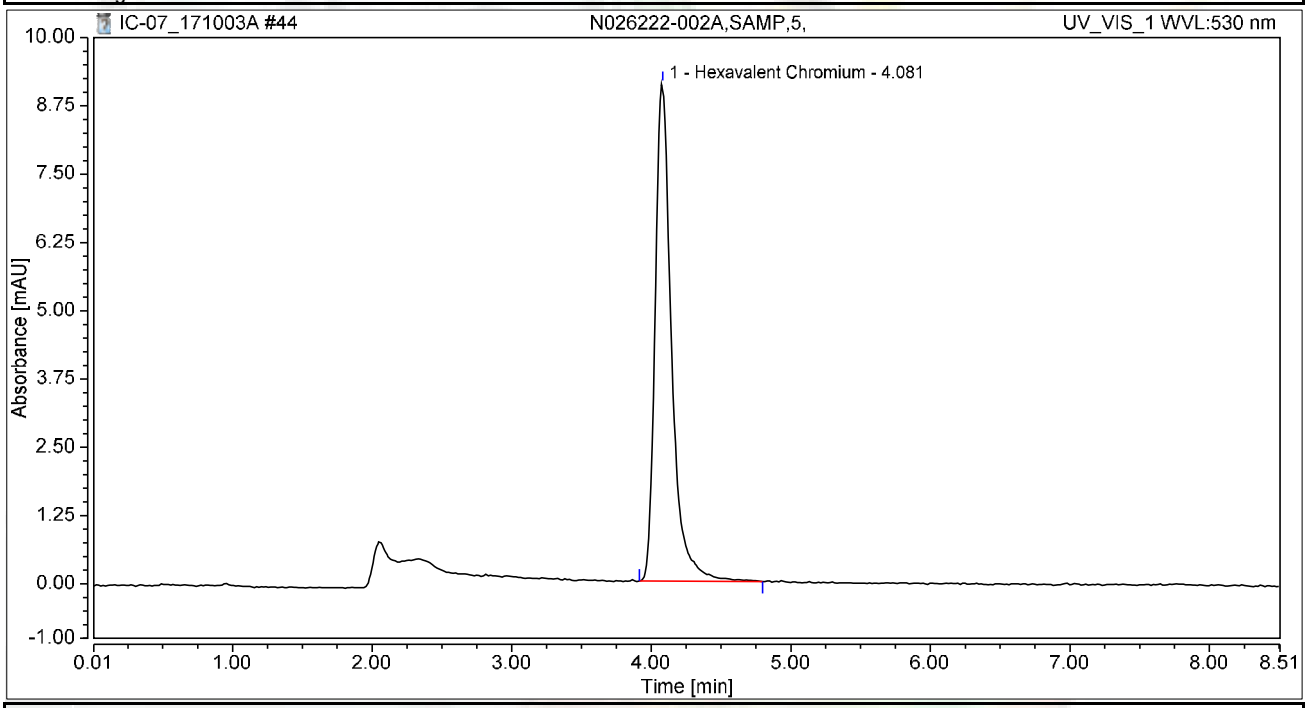
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026222-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 14:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

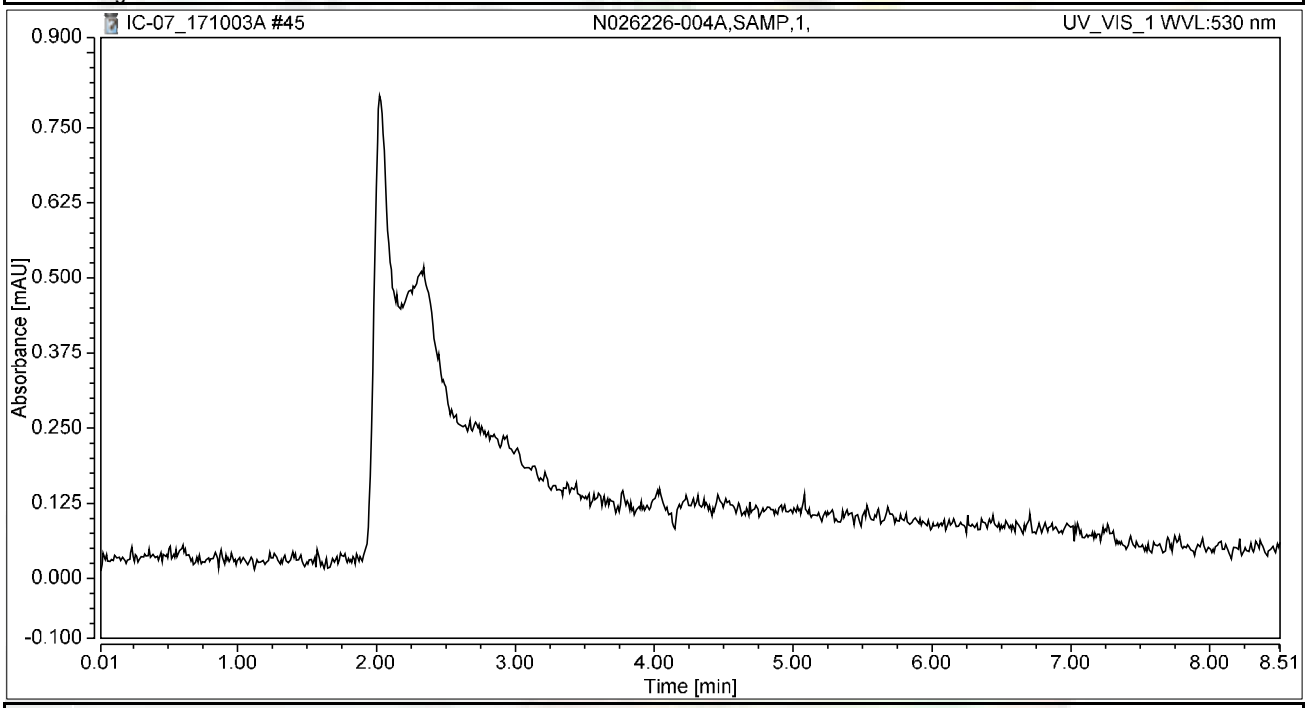
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	1.245	9.113	100.00	100.00	5.0373
Total:			**1.245**	**9.113**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-004A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

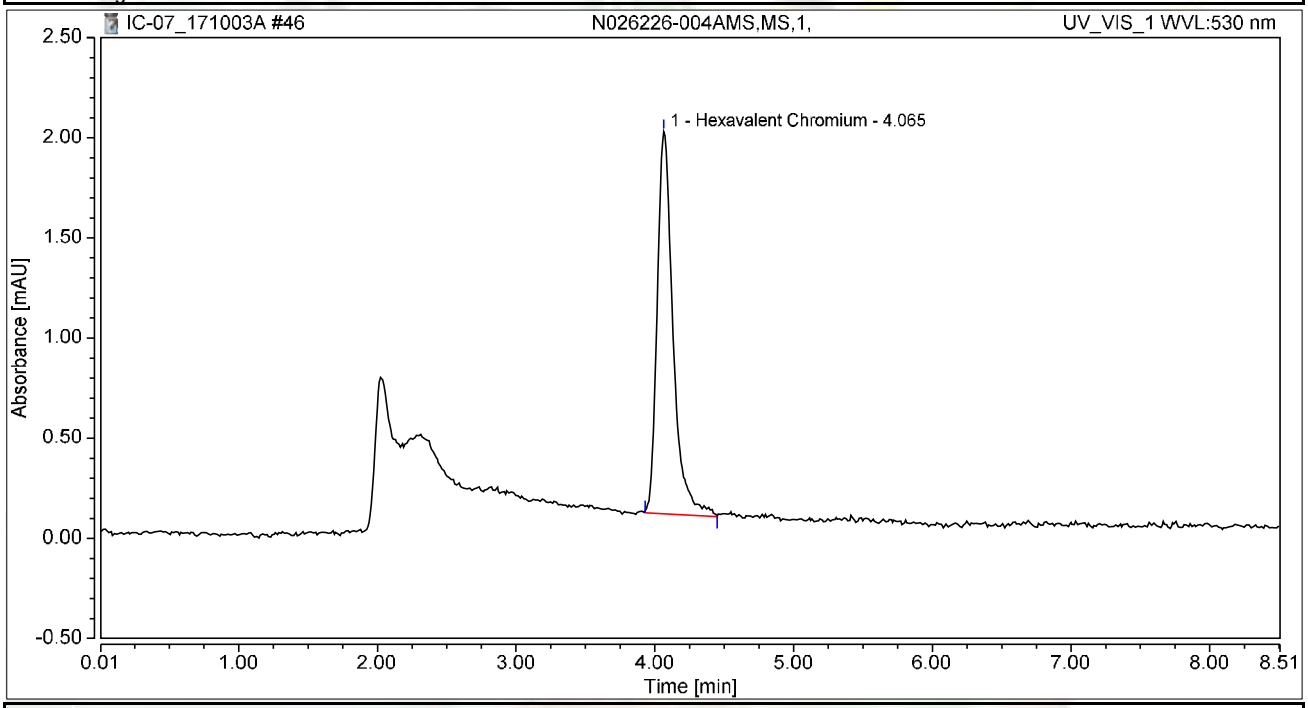
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

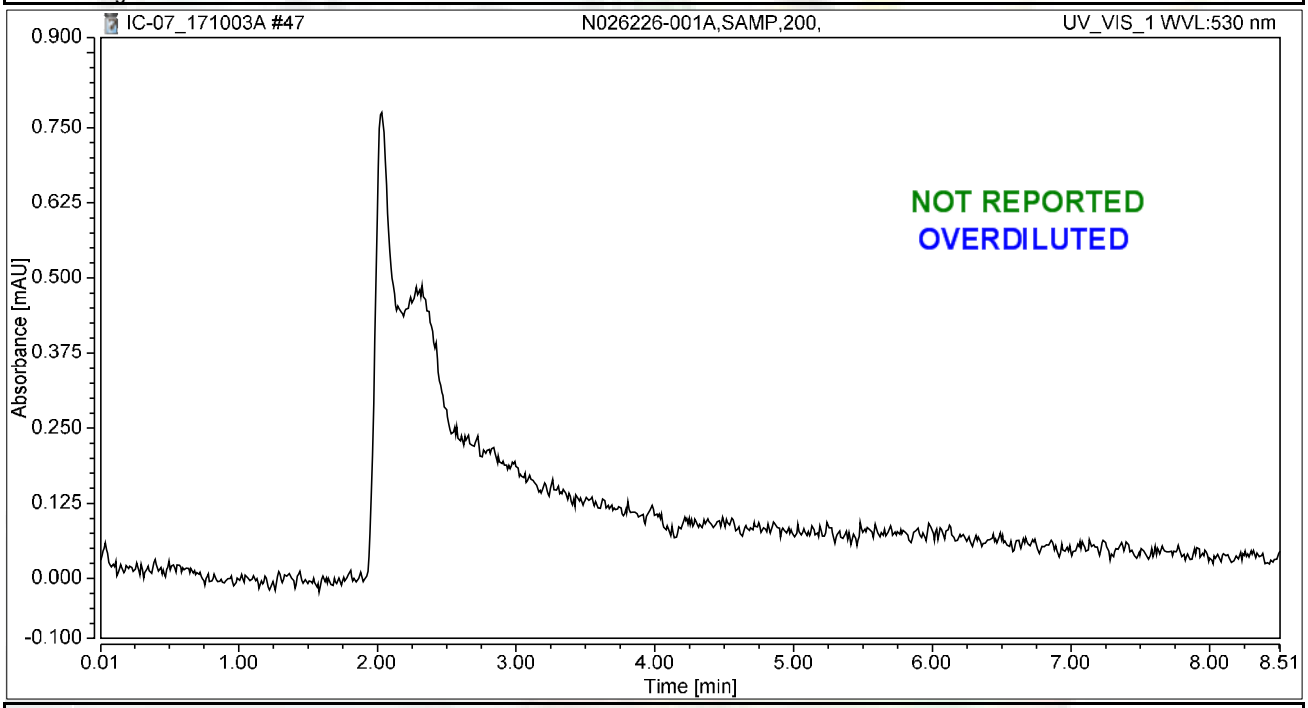
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.253	1.908	100.00	100.00	1.0216
Total:			**0.253**	**1.908**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-001A,SAMP,200,**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

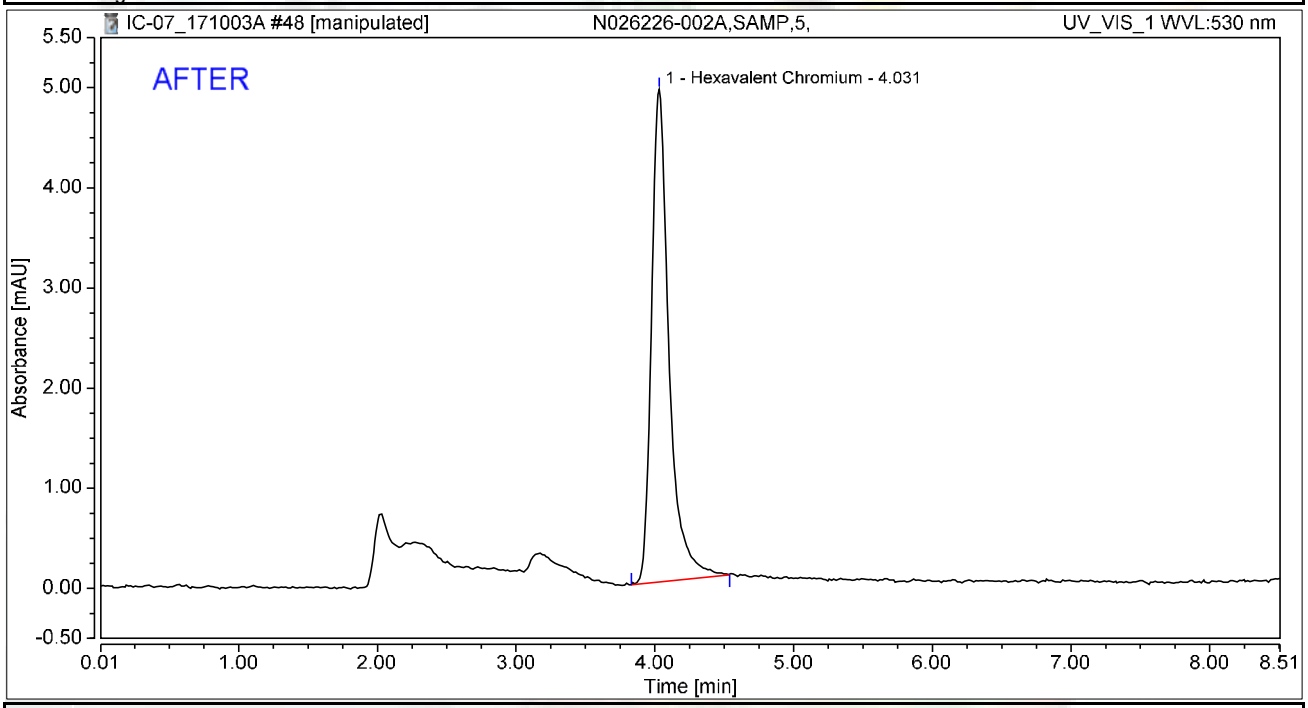
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.723	4.920	100.00	100.00	2.9252
Total:			**0.723**	**4.920**	**100.00**	**100.00**	

rba 10/8/2017

Reviewed by: [signature] 10/9/2017

My first report Integration

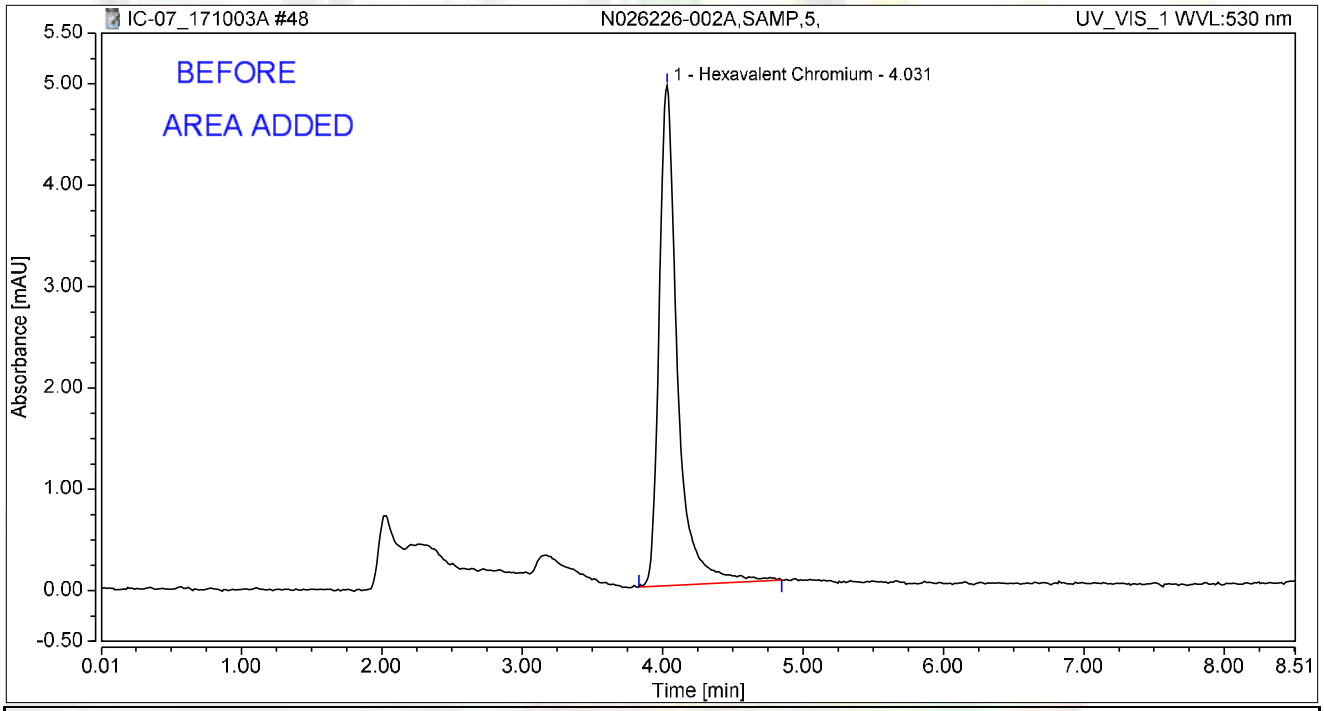
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N026226-002A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.751	4.934	100.00	100.00	3.0366
Total:			**0.751**	**4.934**	**100.00**	**100.00**	

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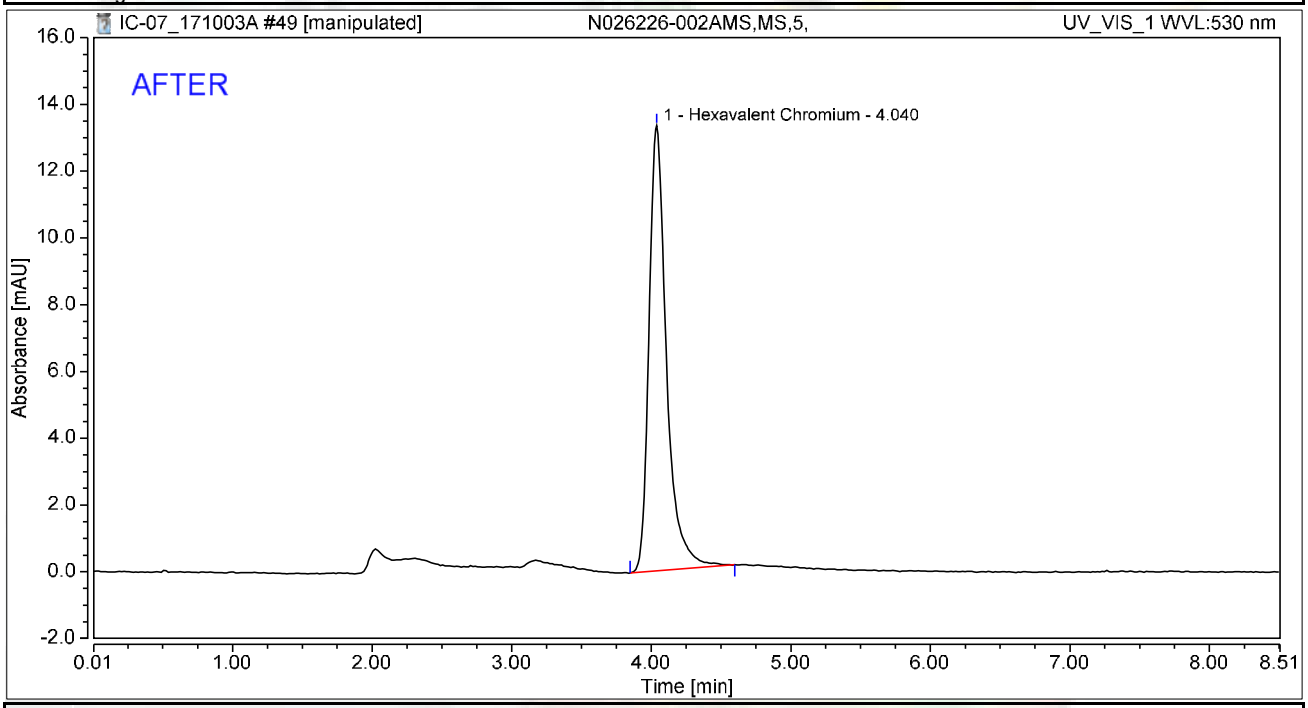
Chromatogram and Results

Injection Details

Injection Name:	**N026226-002AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	1.933	13.332	100.00	100.00	7.8202
Total:			**1.933**	**13.332**	**100.00**	**100.00**	

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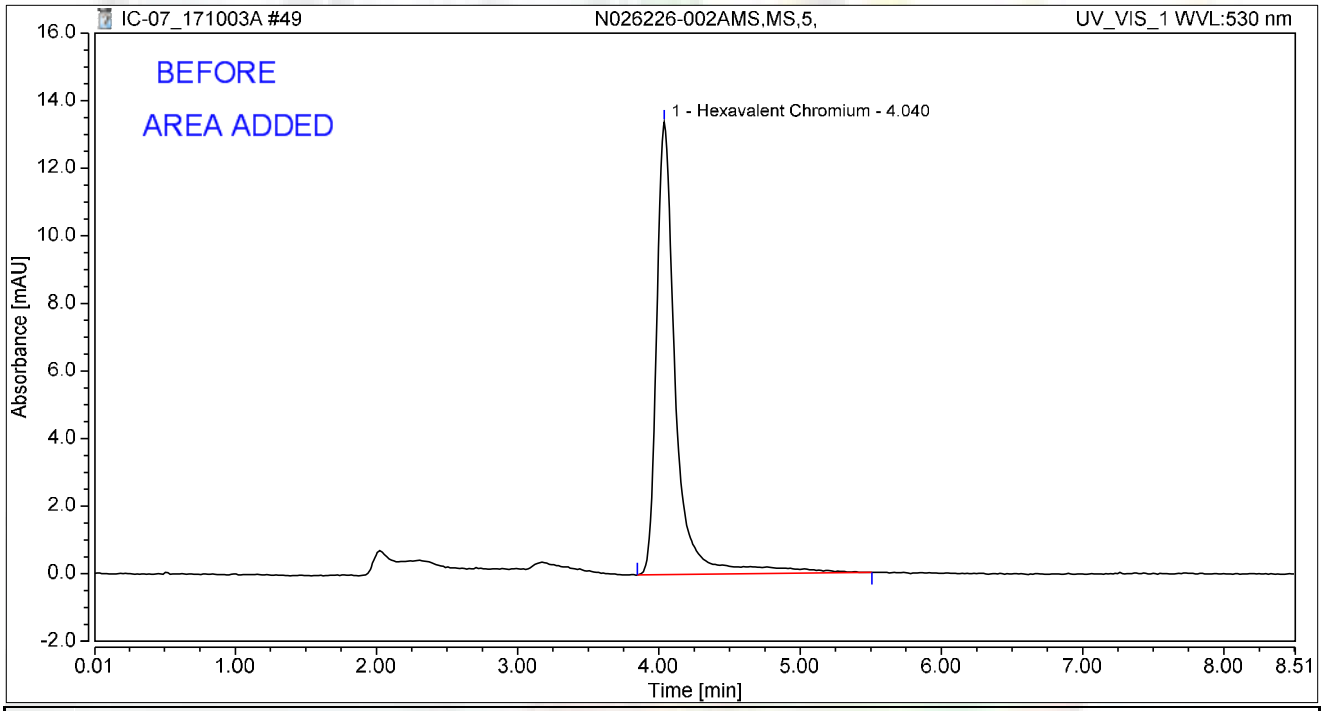
Reviewed by: Nancy 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026226-002AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	2.110	13.387	100.00	100.00	8.5347
Total:			**2.110**	**13.387**	**100.00**	**100.00**	

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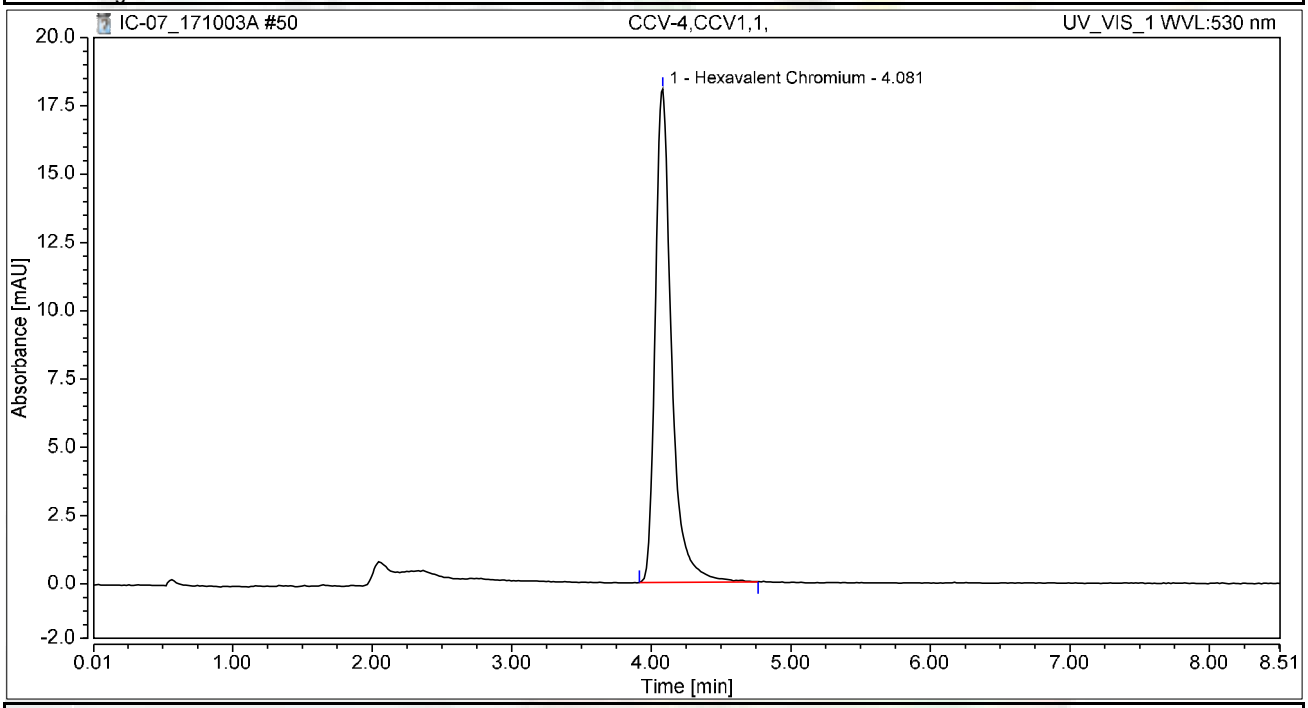
Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

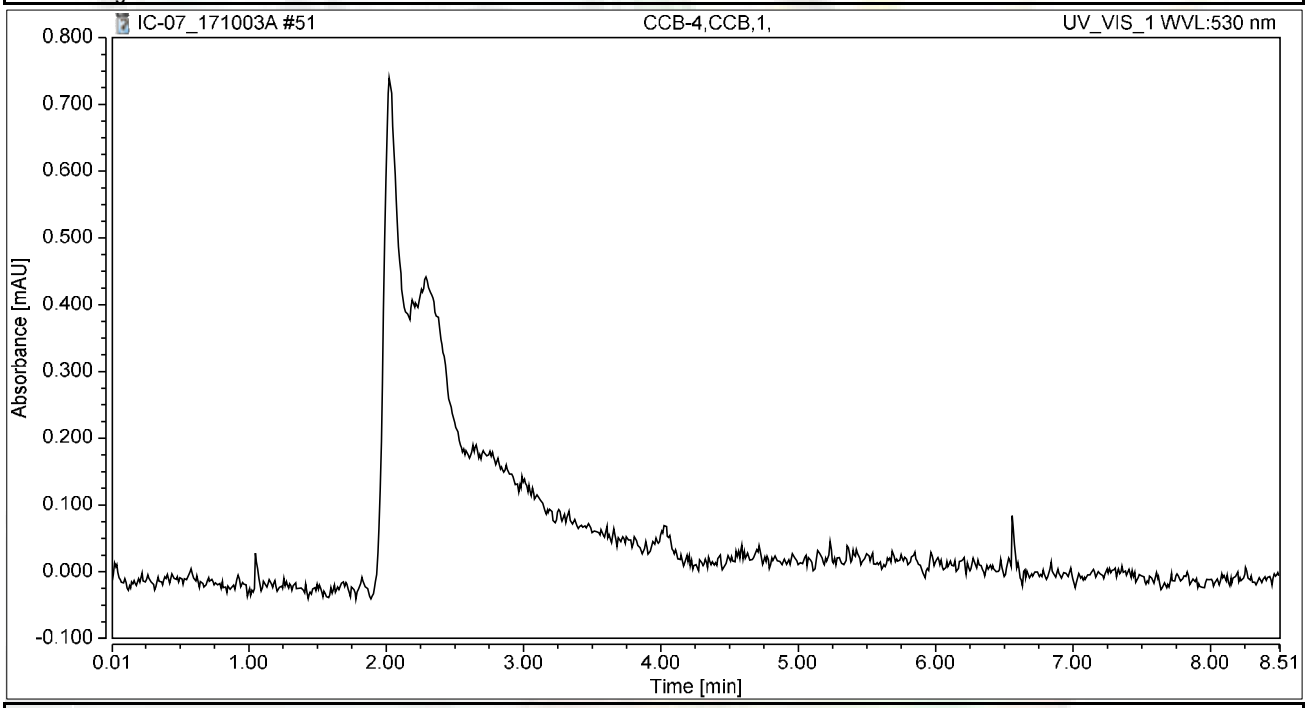
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.081	2.438	18.053	100.00	100.00	9.8642
Total:			**2.438**	**18.053**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 15:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

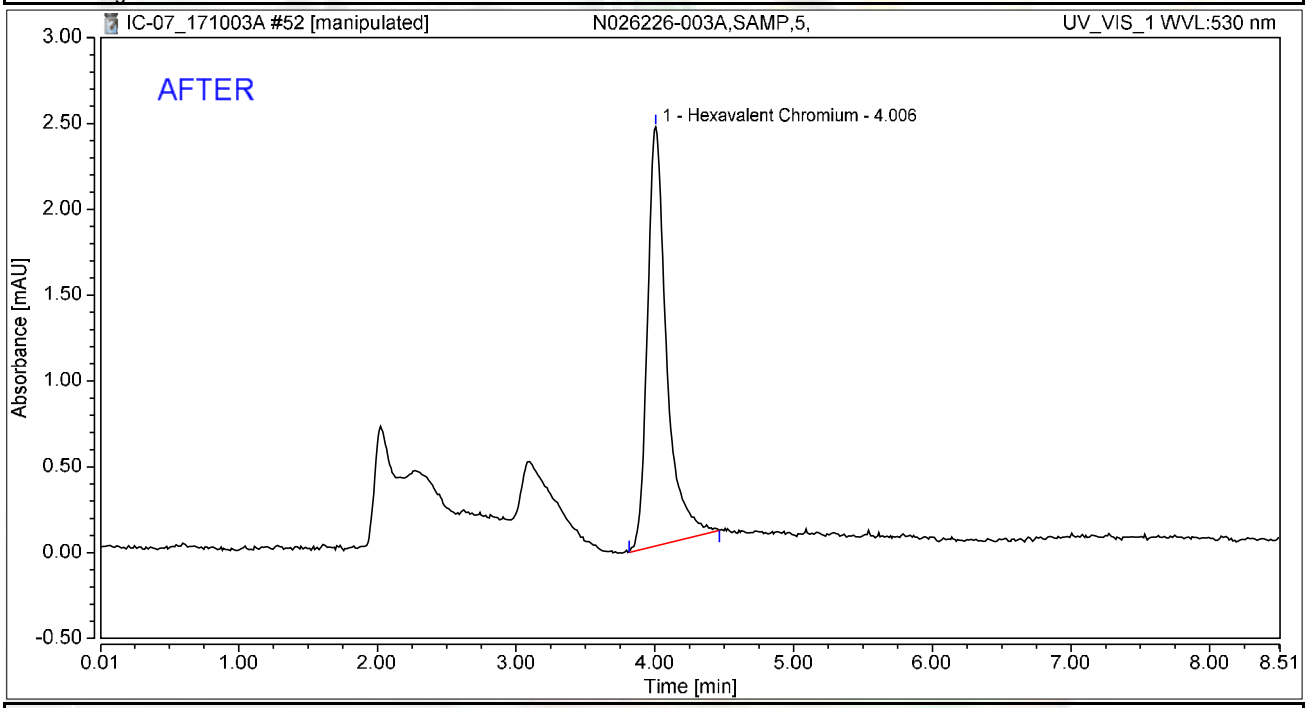
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-003A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.392	2.442	100.00	100.00	1.5849
Total:			**0.392**	**2.442**	**100.00**	**100.00**	

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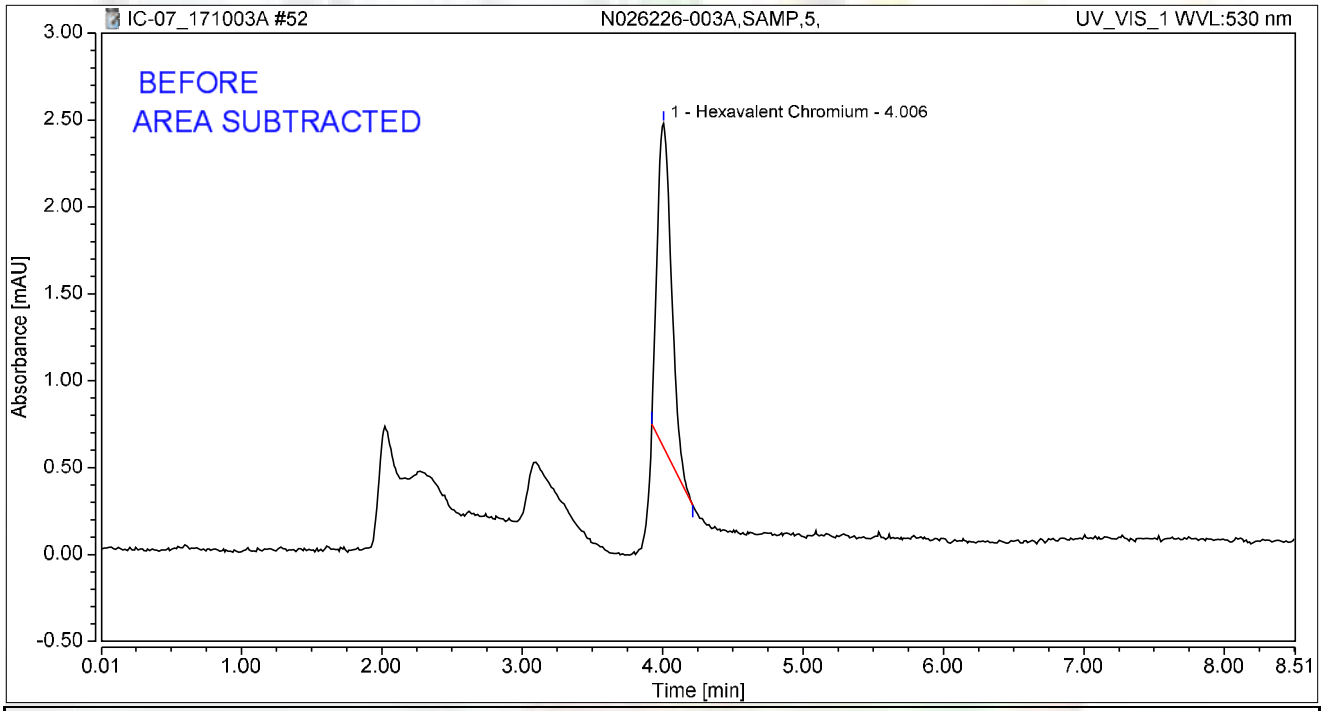
Reviewed by: Nancy 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026226-003A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.218	1.863	100.00	100.00	0.8835
Total:			**0.218**	**1.863**	**100.00**	**100.00**	

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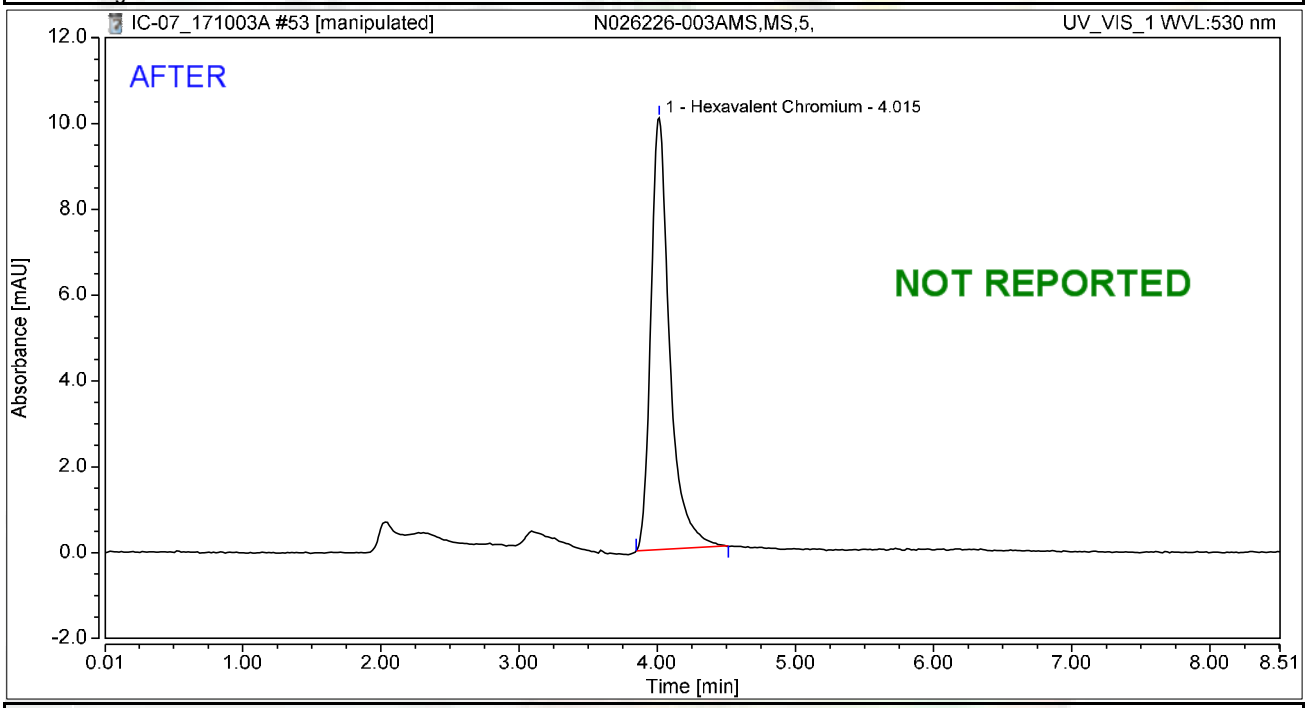
Chromatogram and Results

Injection Details

Injection Name:	**N026226-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	1.586	10.060	100.00	100.00	6.4166
Total:			**1.586**	**10.060**	**100.00**	**100.00**	

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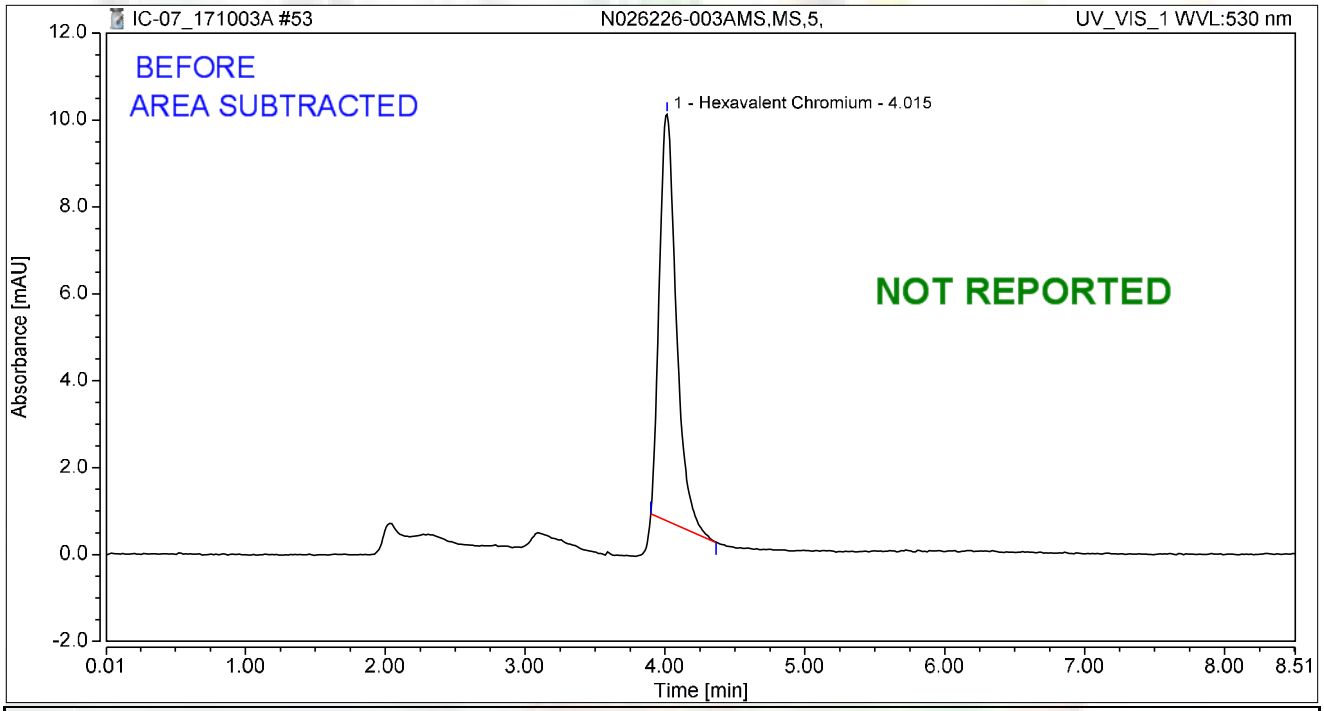
Chromatogram and Results

Injection Details

Injection Name:	**N026226-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.015	1.324	9.364	100.00	100.00	5.3580
Total:			**1.324**	**9.364**	**100.00**	**100.00**	

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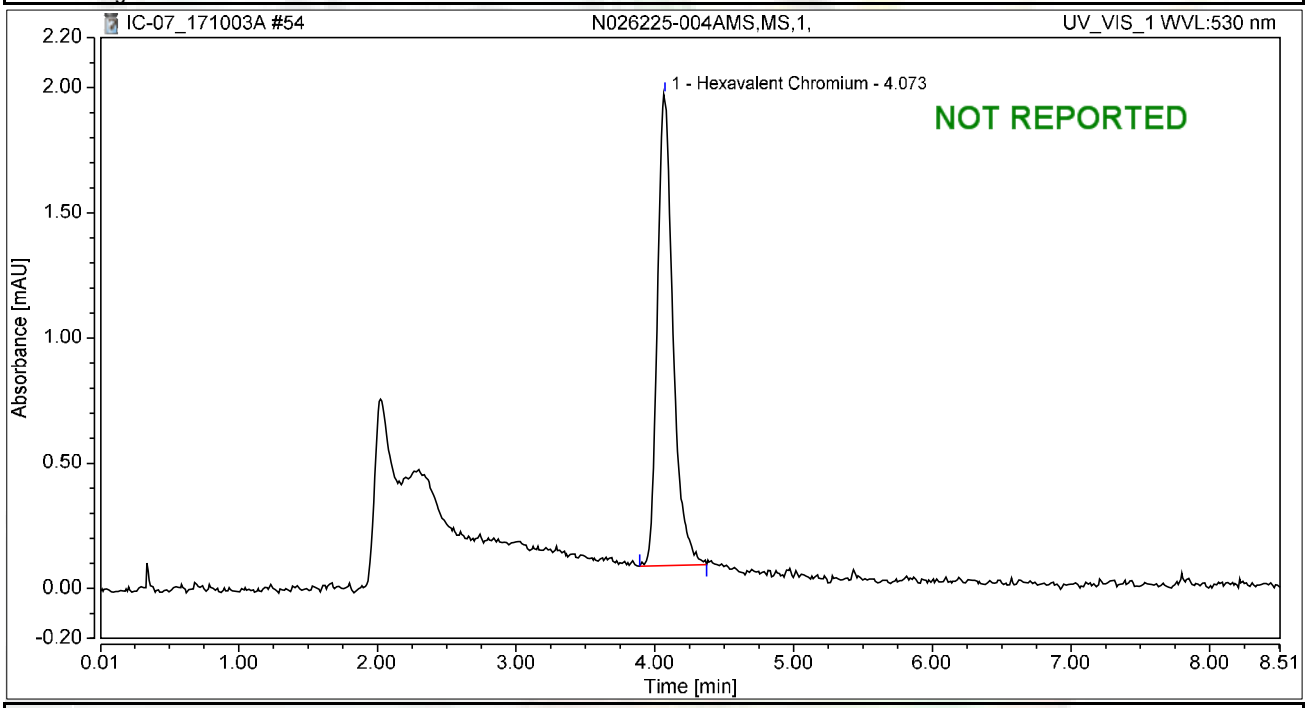
Chromatogram and Results

Injection Details

Injection Name:	**N026225-004AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

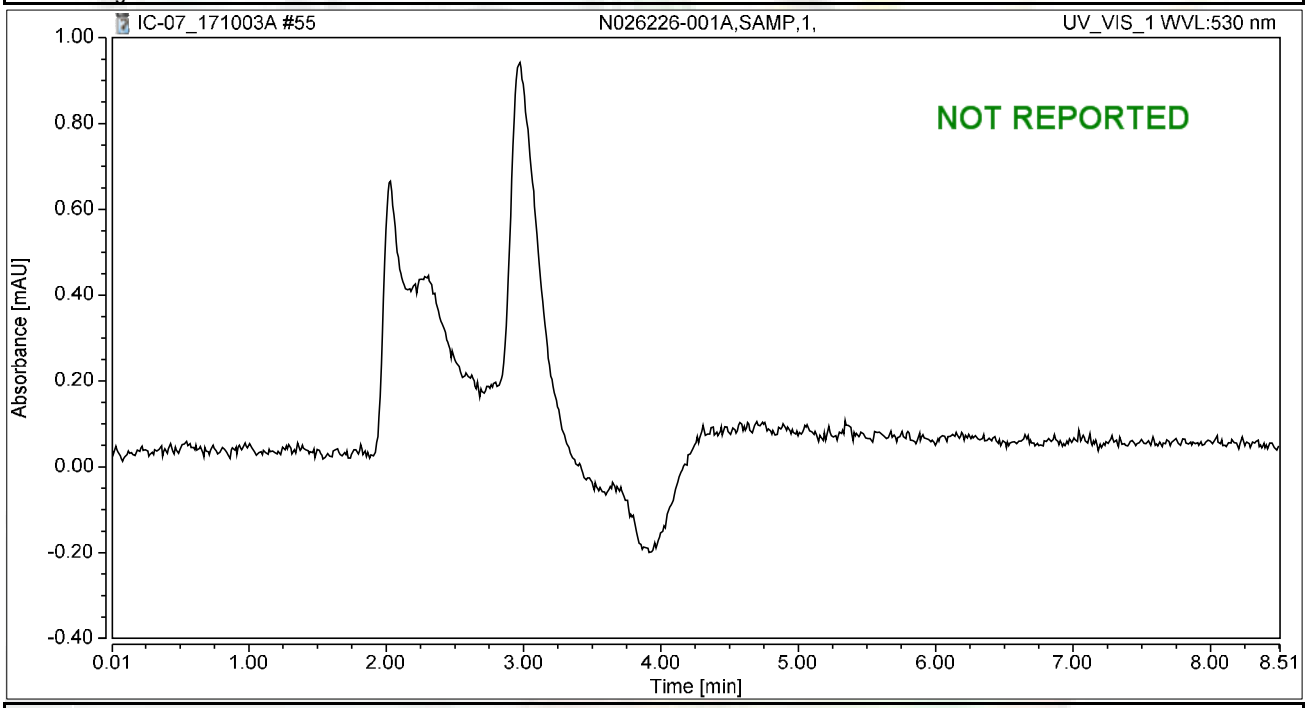
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.247	1.882	100.00	100.00	0.9979
Total:			**0.247**	**1.882**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-001A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

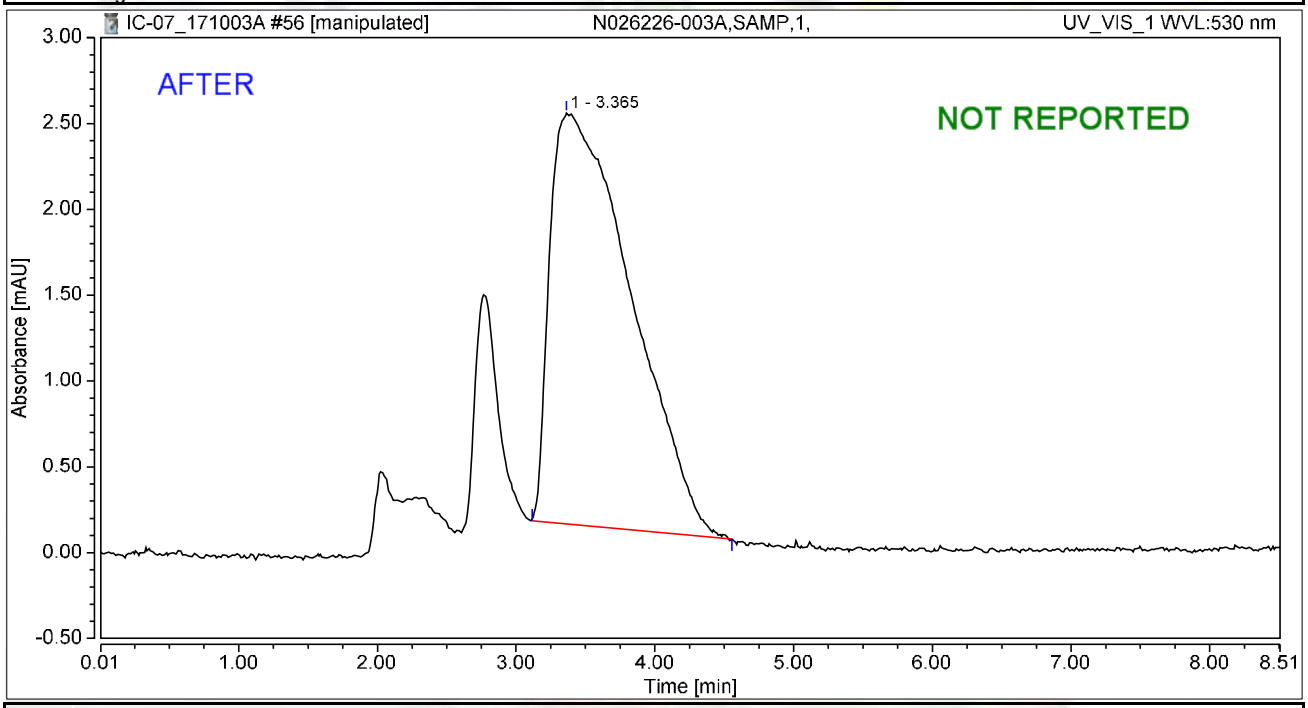
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.365	1.630	2.393	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**1.630**	**2.393**	**100.00**	**100.00**	

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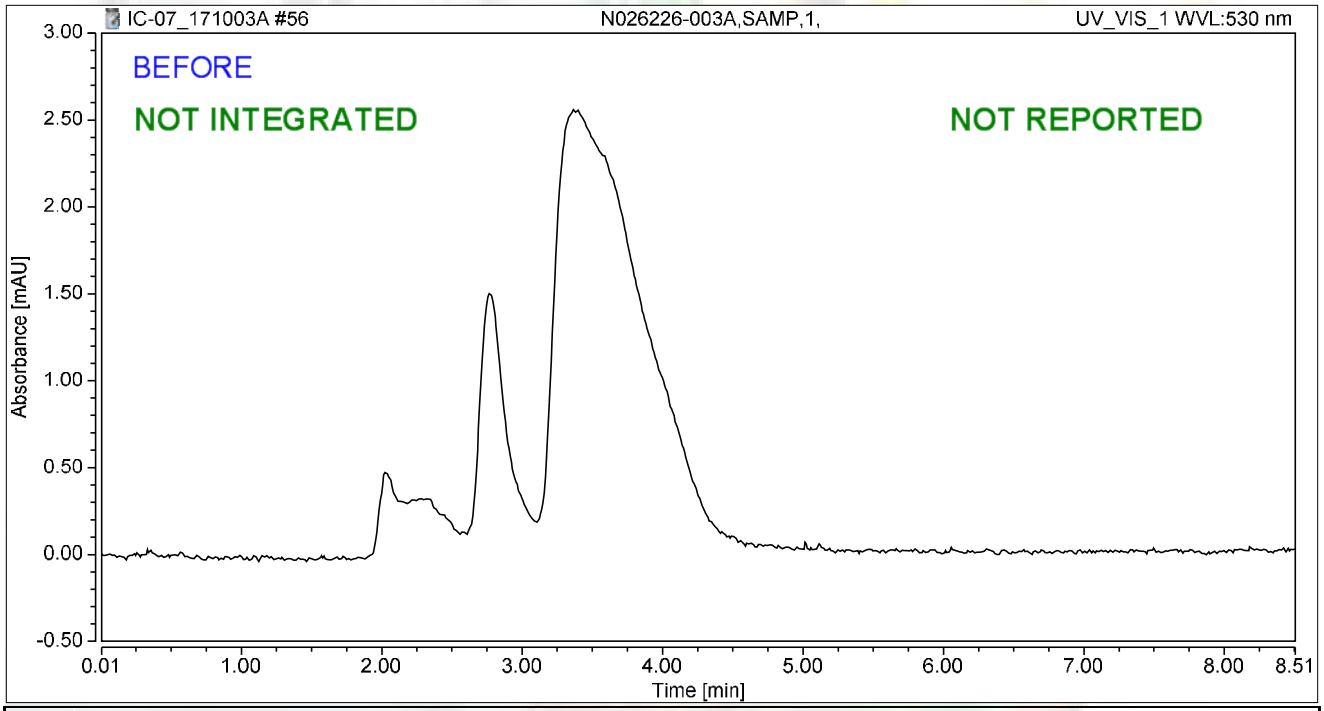
Chromatogram and Results

Injection Details

Injection Name:	**N026226-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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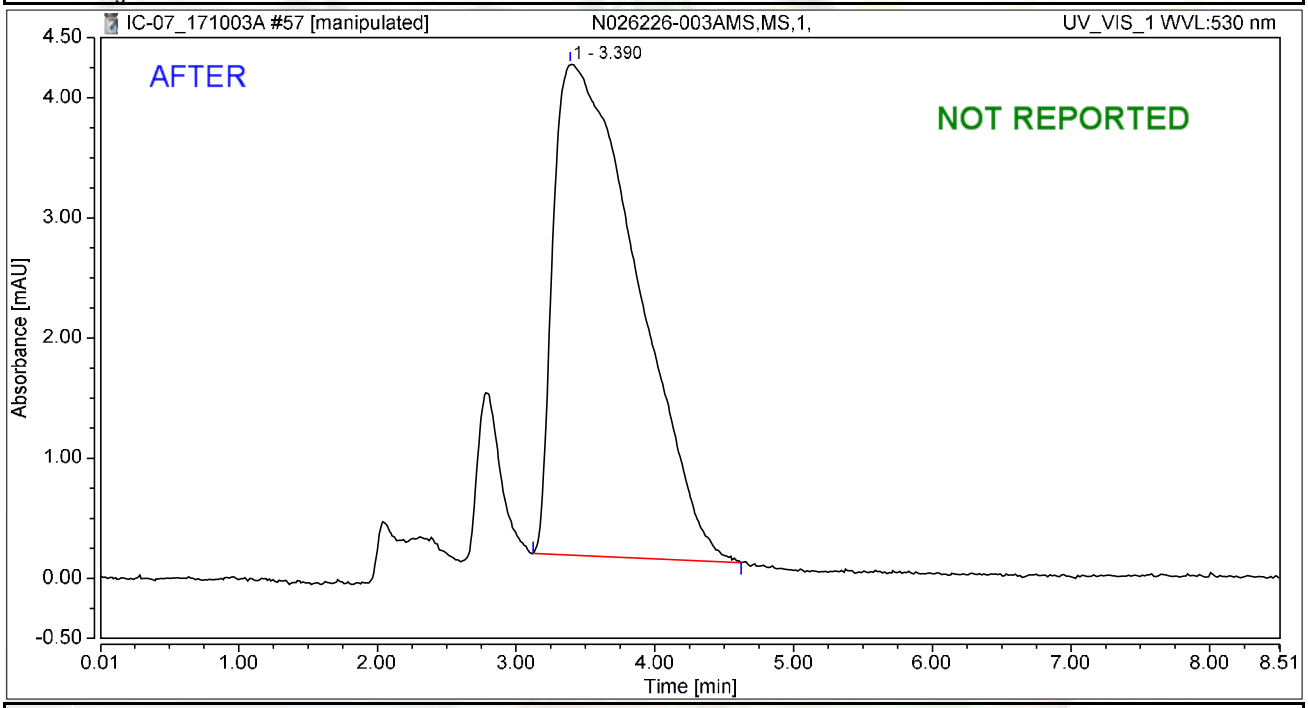
Chromatogram and Results

Injection Details

Injection Name:	**N026226-003AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.390	2.849	4.088	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**2.849**	**4.088**	**100.00**	**100.00**	

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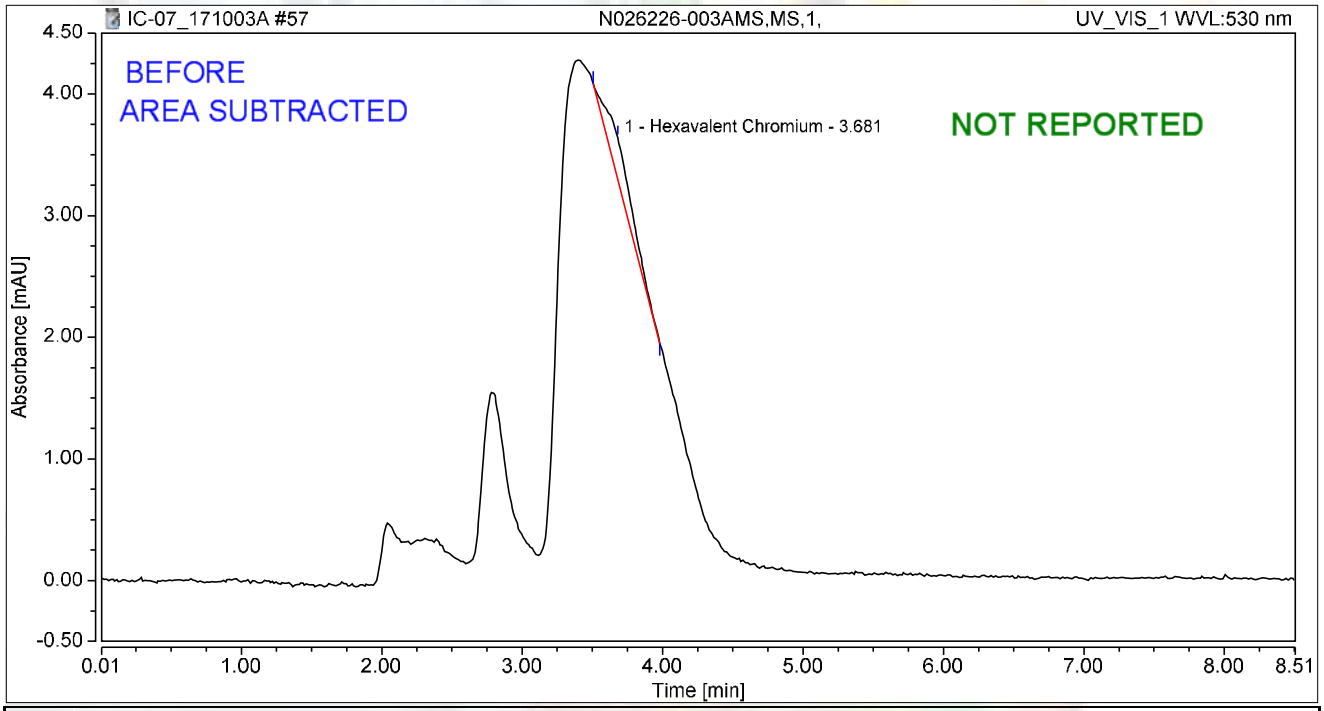
Chromatogram and Results

Injection Details

Injection Name:	**N026226-003AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.681	0.074	0.342	100.00	100.00	0.3000
Total:			**0.074**	**0.342**	**100.00**	**100.00**	

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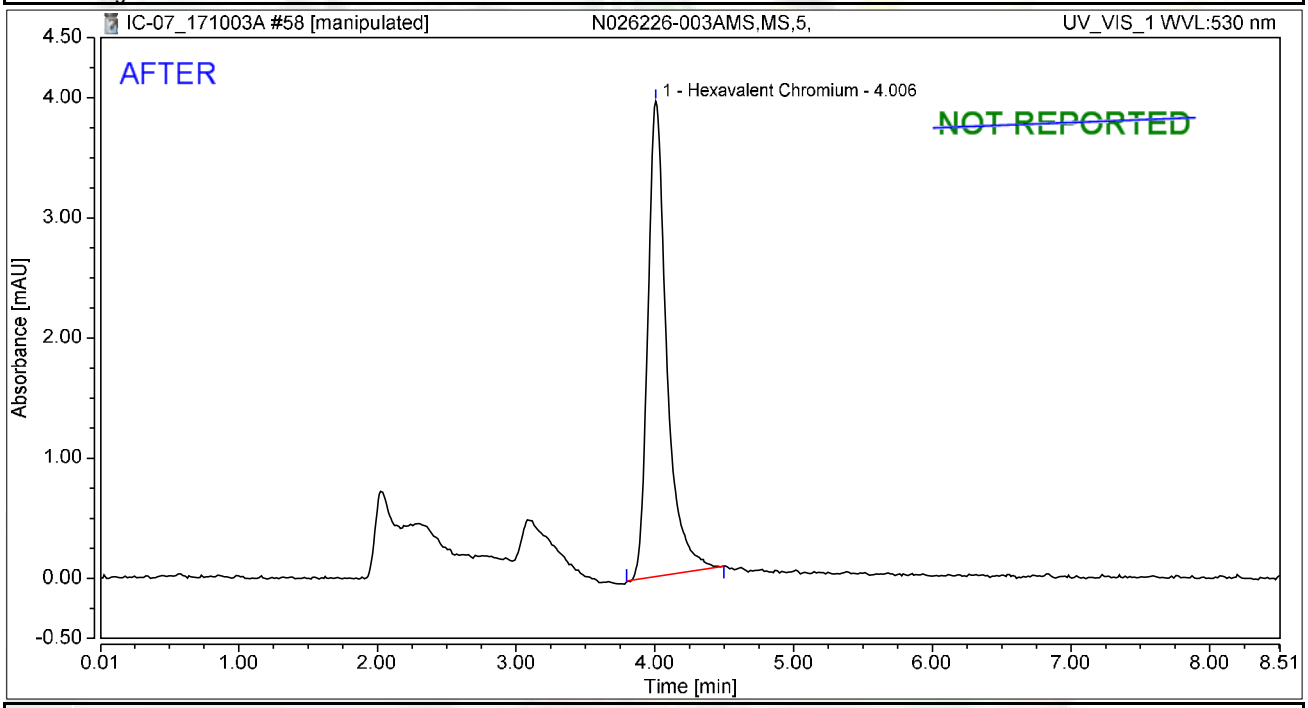
Chromatogram and Results

Injection Details

Injection Name:	**N026226-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.625	3.954	100.00	100.00	2.5274
Total:			**0.625**	**3.954**	**100.00**	**100.00**	

rba 10/8/2017

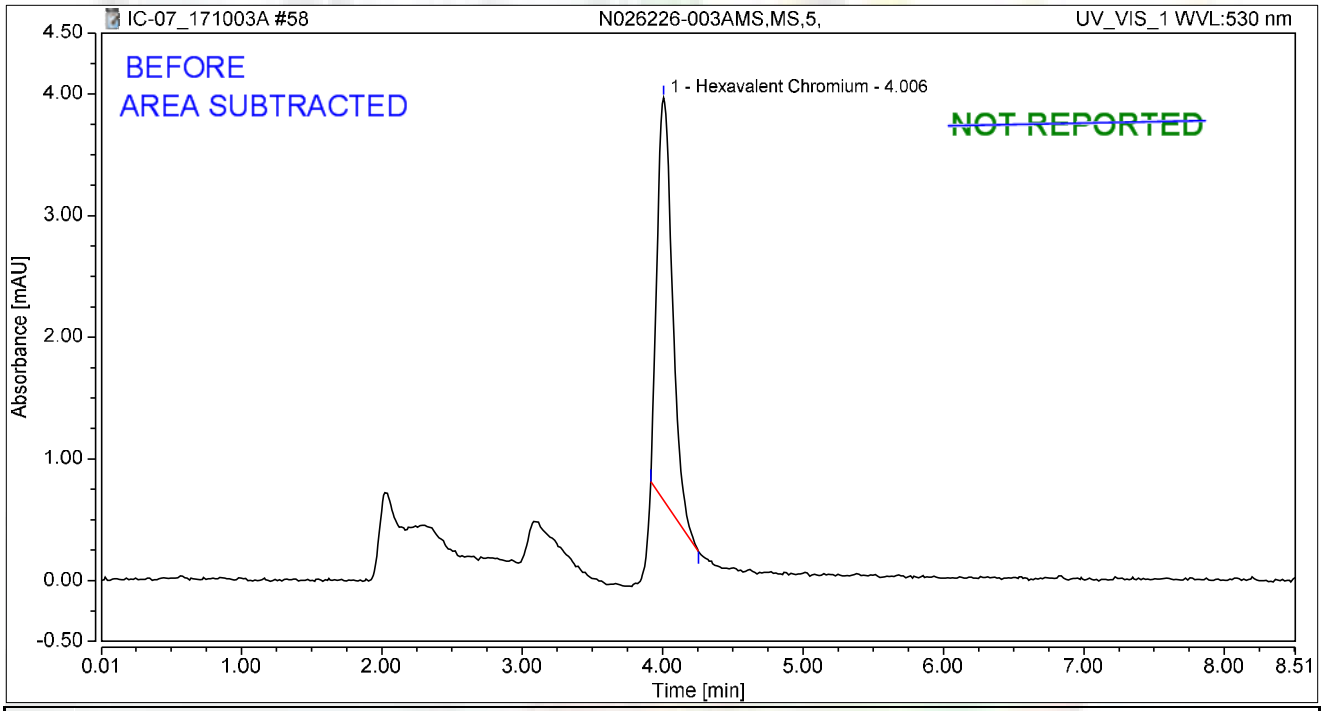
Reviewed by: Nancy 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026226-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.422	3.309	100.00	100.00	1.7057
Total:			**0.422**	**3.309**	**100.00**	**100.00**	

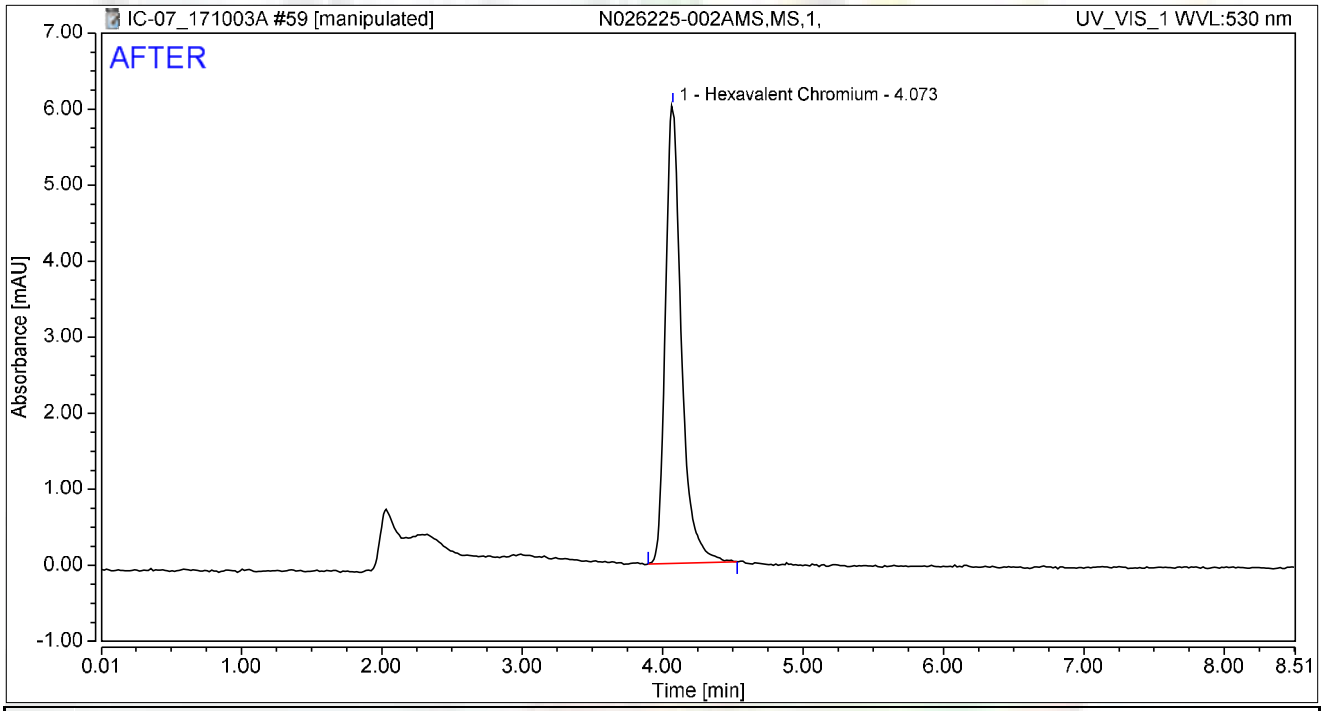
rba 10/8/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026225-002AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.802	6.024	100.00	100.00	3.2462
Total:			**0.802**	**6.024**	**100.00**	**100.00**	

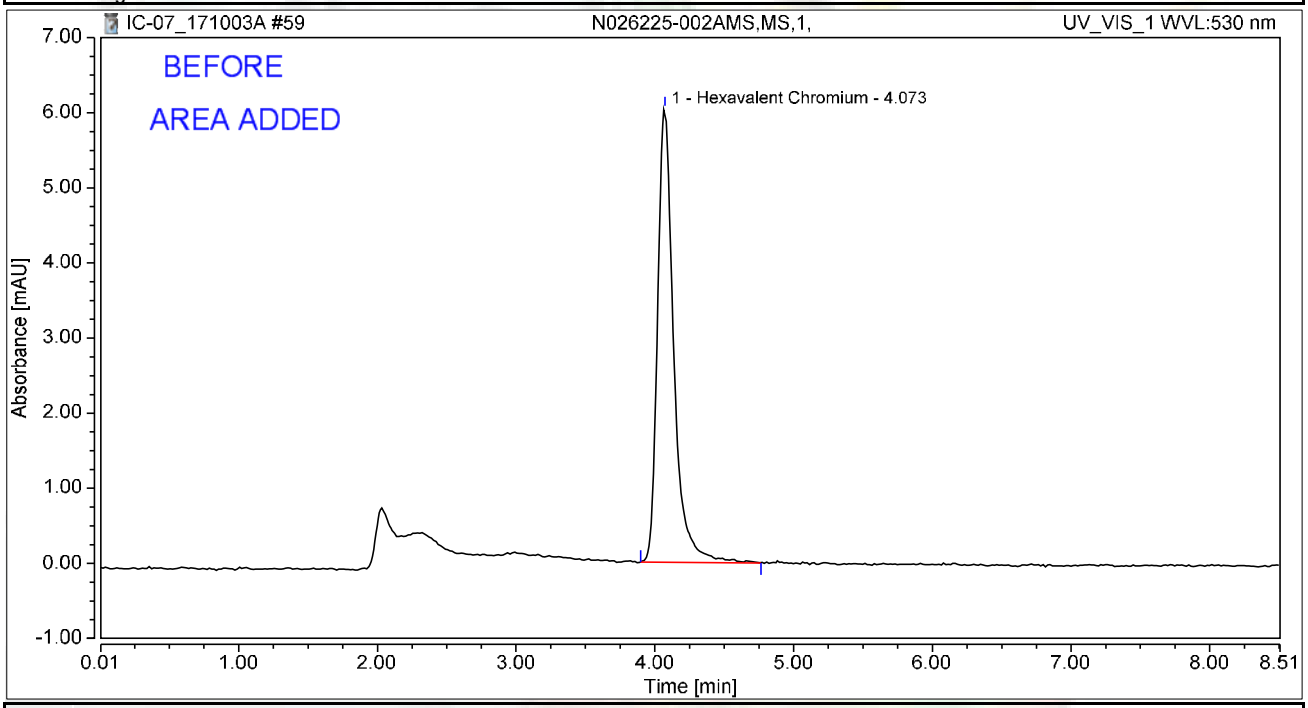
rba 10/8/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026225-002AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.818	6.034	100.00	100.00	3.3111
Total:			**0.818**	**6.034**	**100.00**	**100.00**	

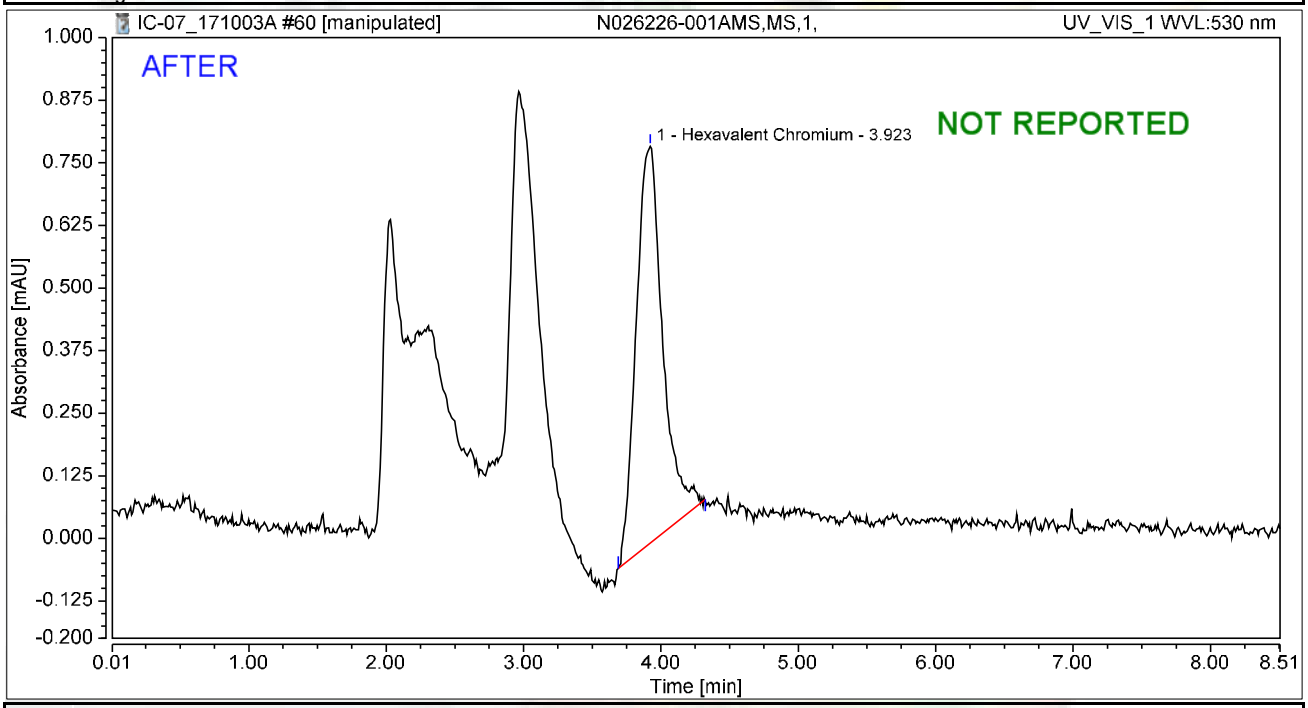
rba 10/8/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026226-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.923	0.178	0.792	100.00	100.00	0.7210
Total:			**0.178**	**0.792**	**100.00**	**100.00**	

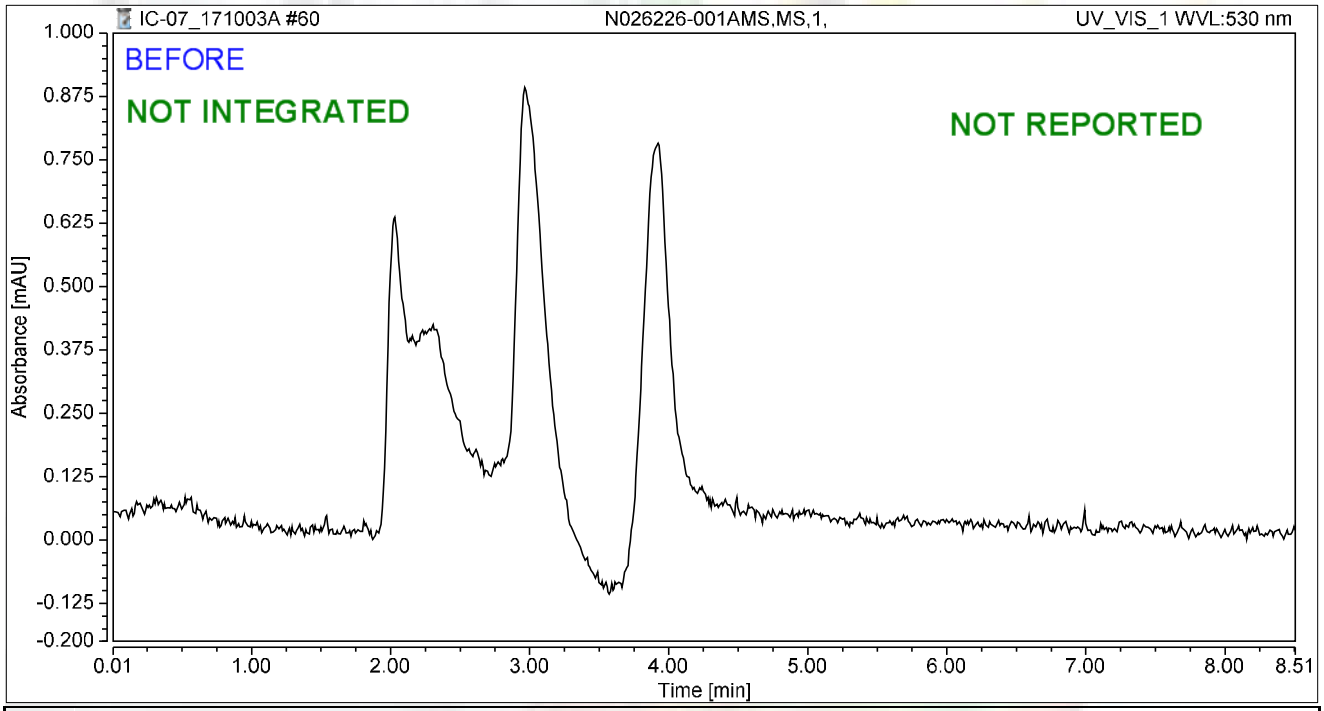
rba 10/8/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026226-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

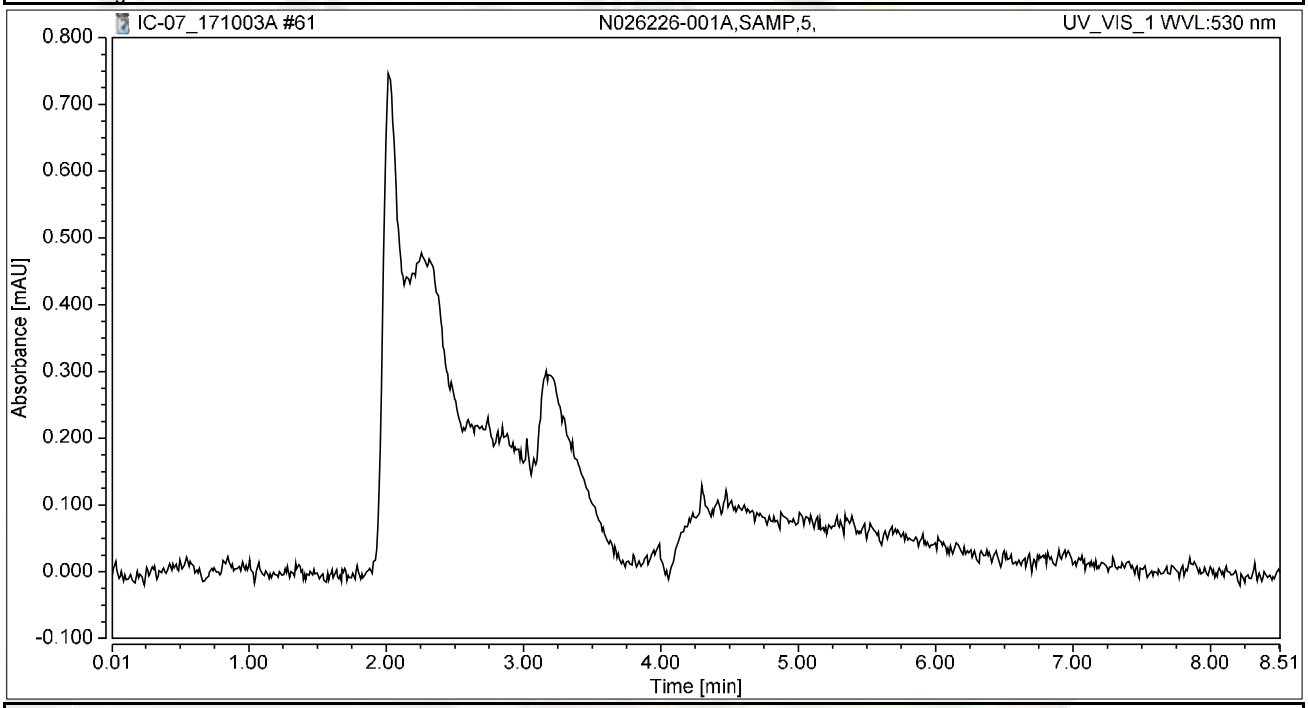
rba 10/8/2017

Chromatogram and Results

Injection Details

Injection Name:	**N026226-001A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

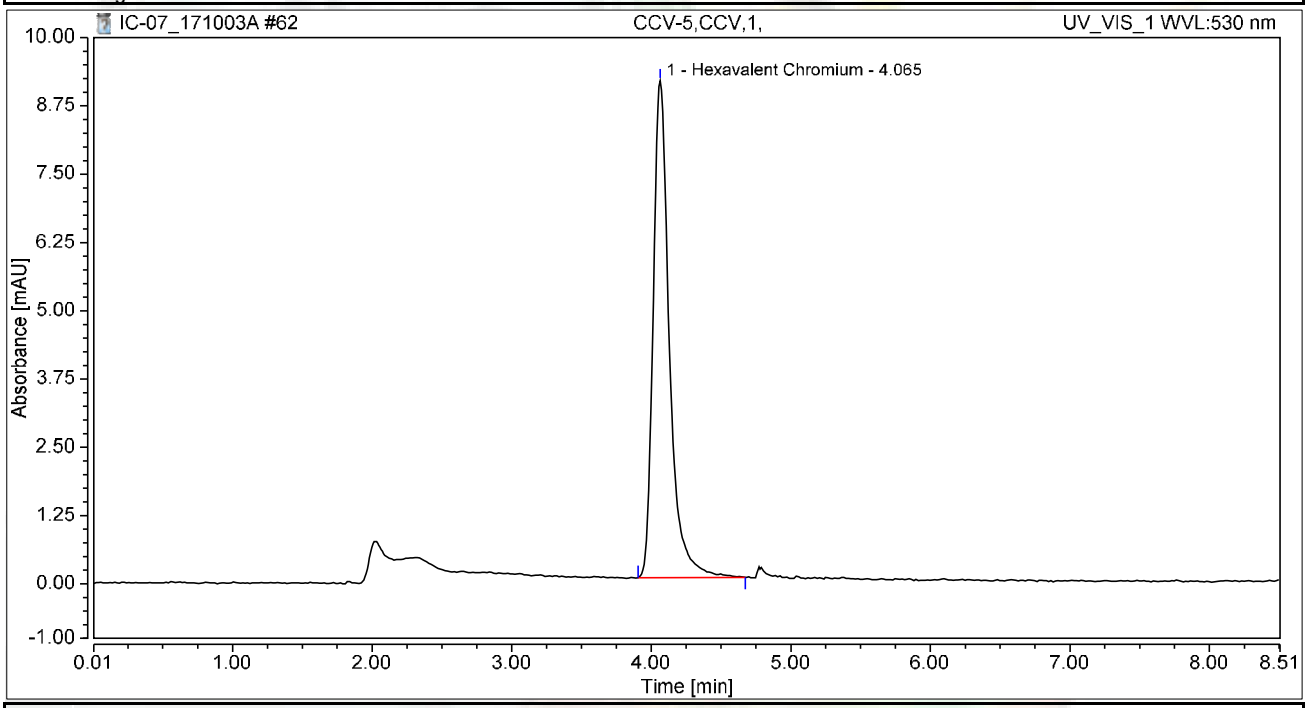
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

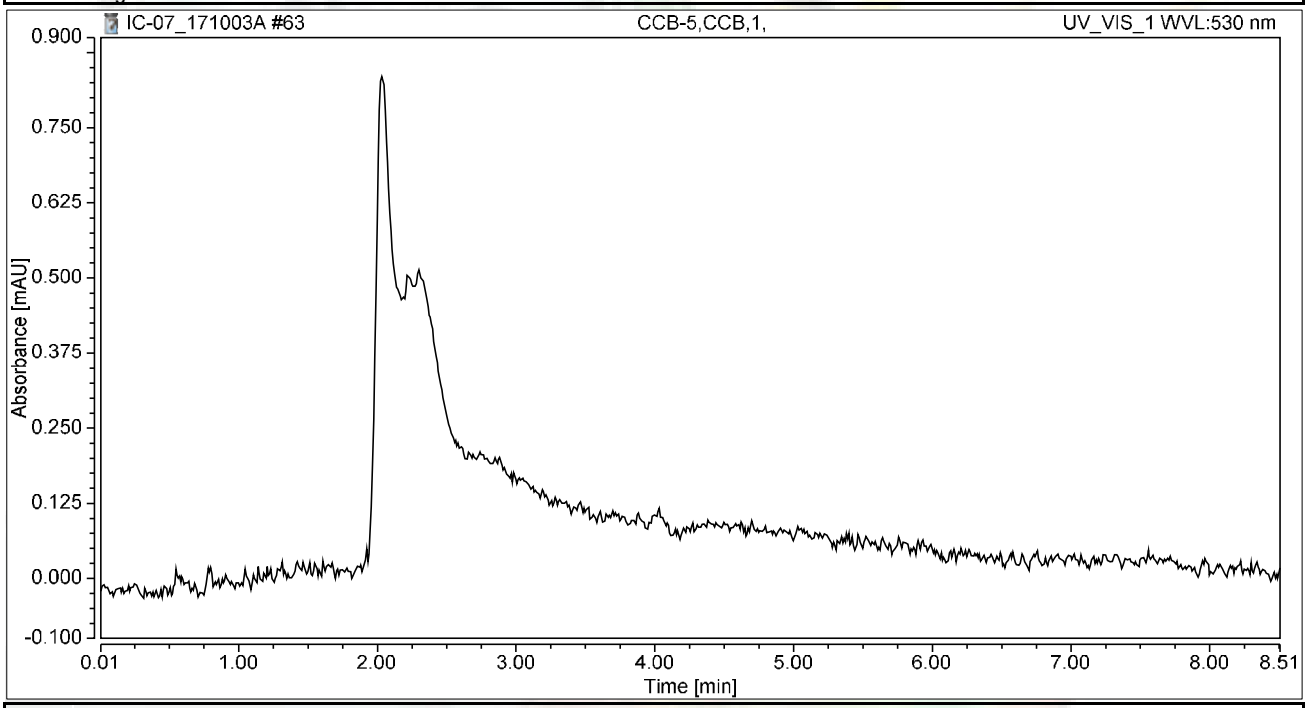
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.227	9.096	100.00	100.00	4.9646
Total:			**1.227**	**9.096**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 17:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

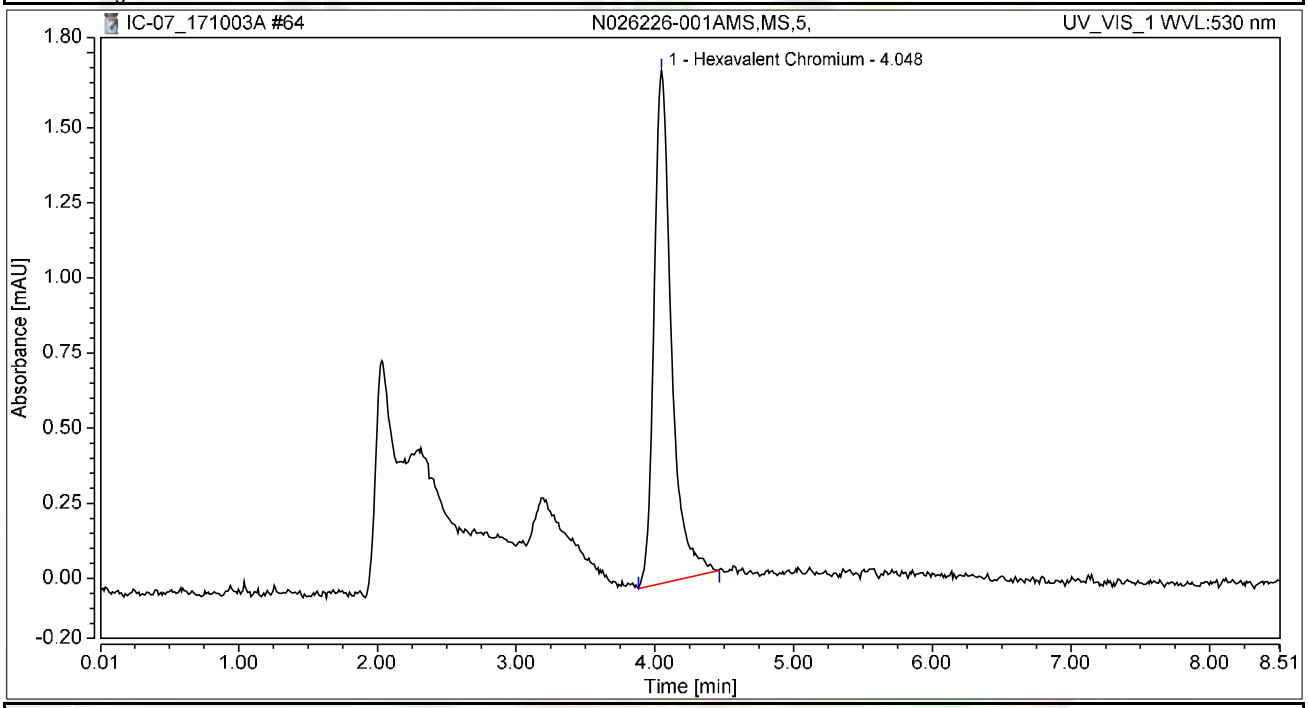
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026226-001AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 18:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

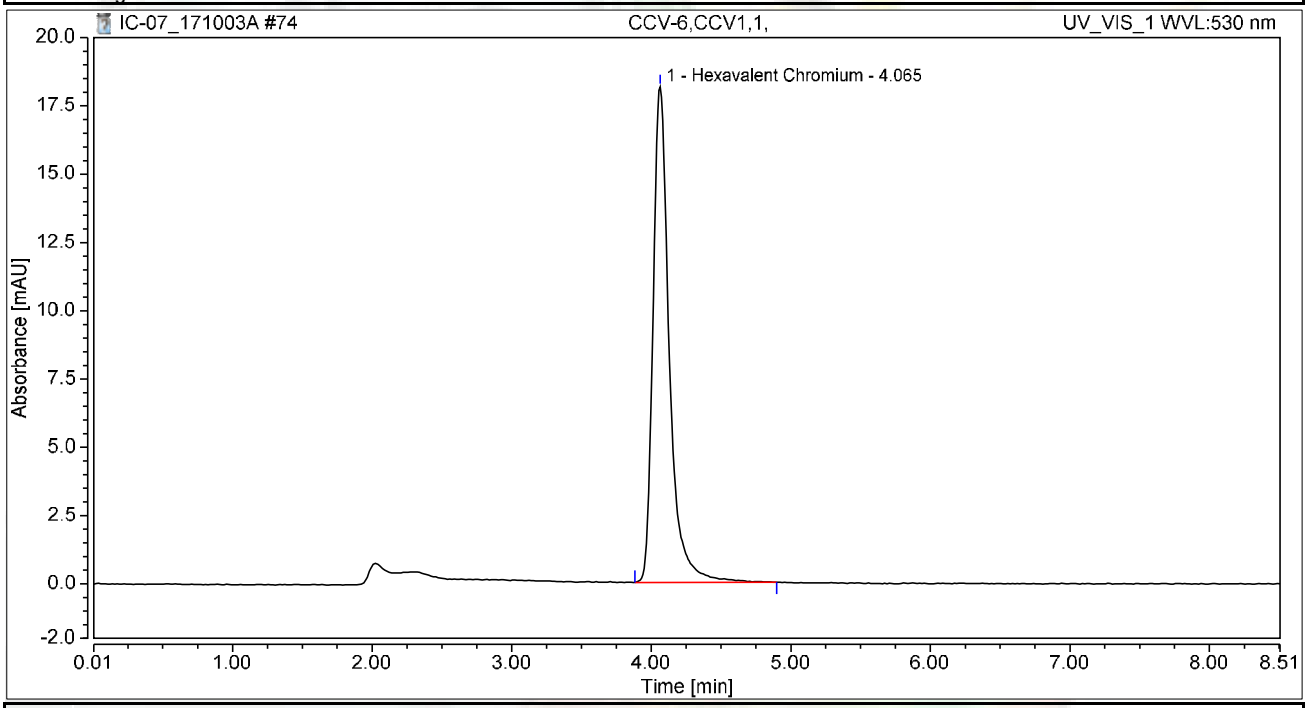
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.249	1.708	100.00	100.00	1.0073
Total:			**0.249**	**1.708**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 19:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

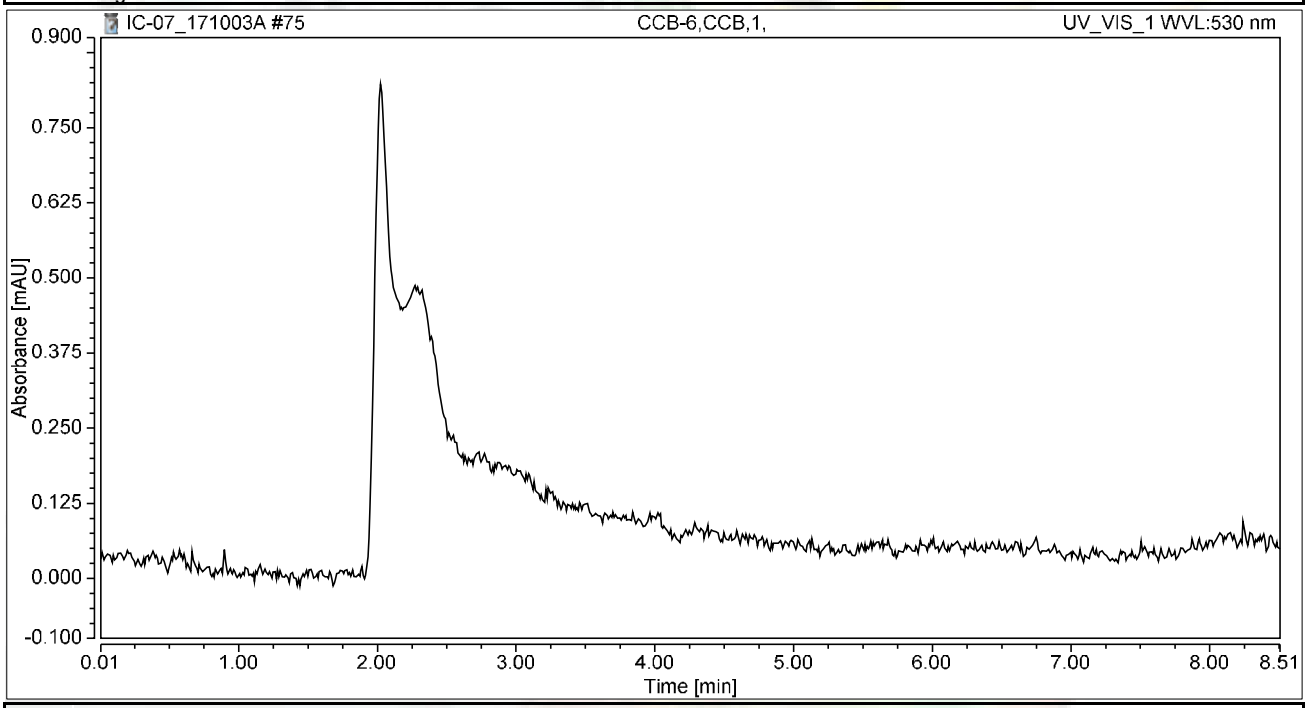
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.458	18.147	100.00	100.00	9.9432
Total:			**2.458**	**18.147**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/Oct/17 19:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118390 **Analyst:** QBM

ASSET #: N026226 **Date Analyzed:** 10/7/2017

Method: 4500_NO3

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer RB 10/13/17 Date: —

2nd Level Reviewer 10/16/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500NO3F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

where:

A = mg/L, Nitrate/Nitrite-N instrument calculated concentration
DF = dilution factor

For **N026226-003C** concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 1.0815*1

= 1.0815 mg/L

Reporting results in two significant figures:
Nitrate/Nitrite-N, mg/L = 1.1

RLB 10/13/17

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

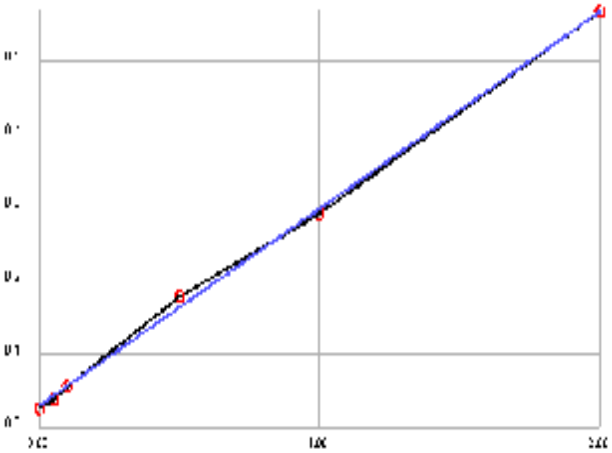
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2693x + 0.029
Correlation	.999241

Calibrant	Energy	Set	Conc
1	0.0249	0.0000	-0.0152
2	0.0380	0.0500	0.0334
3	0.0561	0.1000	0.1006
4	0.1794	0.5000	0.5586
5	0.2912	1.0000	0.9738
6	0.5672	2.0000	1.9988

Notes:

2% CuSO4- R171005A
R1 Buffer- R171005B
R2 Coloring reagent- R171005C

STD 1°- ISST160817E
STD 2°- ISST170419E

10/13/17

INITIAL CALIBRATION AND CONTINUING CALIBRATON VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ICV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.494	0.050	0.5000	0	98.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.469	0.050	0.5000	0	93.8	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCV**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.517	0.050	0.5000	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATON BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **ICB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **118390**
Client ID: **CCB**	Batch ID: **R118390**	TestNo: **SM4500-NO3**		Analysis Date: **10/7/2017**	SeqNo: **2785170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 10-07-2017 10:25
Time end: 10-07-2017 12:42

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	12:11:23	-0.0074		0.0270
2	<BLANK>	12:12:24	-0.0104		0.0262
3	<CAL1>	12:13:18	-0.0152	[0]	0.0249
4	<CAL2>	12:14:13	0.0334	[0.05]	0.0380
5	<CAL3>	12:15:15	0.1006	[0.1]	0.0561
6	<CAL4>	12:16:09	0.5586	[0.5]	0.1794
7	<CAL5>	12:17:10	0.9738	[1]	0.2912
8	<CAL6>	12:18:06	1.9988	[2]	0.5672
9	,BLANK,BLANK,1,	12:19:01	0.0104		0.0318
10	,ICV,ICV,1,	12:20:01	0.4943		0.1621
11	,ICB,ICB,1,	12:20:57	-0.0034		0.0281
12	,MB-H2O,MBLK,1,	12:21:52	-0.0104		0.0262
13	,LCS-H2O,LCS,1,	12:22:53	0.5266		0.1708
14	,N026114-006C,SAMP,5,	12:23:47	0.5857		0.1867
15	,N026134-001C,SAMP,1,	12:24:43	1.1042		0.3263
16	,N026134-002C,SAMP,1,	12:25:44	0.0334		0.0380
17	,N026134-002CDUP,DUP,1,	12:26:27	0.0160		0.0333
18	,N026134-003C,SAMP,5,	12:27:16	0.6418		0.2018
19	,N026134-003CMS,MS,5,	12:27:58	1.1469		0.3378
20	,N026134-003CMSD,MSD,5,	12:28:47	1.1517		0.3391
21	,BLANK,	12:29:31	0.0078		0.0311
22	,CCV-1,CCV,1,	12:30:13	0.4691		0.1553
23	,CCB-1,CCB,1,	12:31:02	0.0111		0.0320
24	,N026134-004C,SAMP,1,	12:31:44	0.1218		0.0618
25	,N026156-001C,SAMP,1,	12:32:28	1.3589		0.3949
26	,N026156-002C,SAMP,1,	12:33:16	0.8516		0.2583

RB 10/13/17

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N026156-003C,SAMP,1,	12:33:59	0.8761		0.2649
28	,N026226-001C,SAMP,1,	12:34:48	0.0282		0.0366
29	,N026226-002C,SAMP,1,	12:35:30	0.0728		0.0486
30	,N026226-003C,SAMP,1,	12:36:14	1.0815		0.3202
31	,N026257-001D,SAMP,5,	12:37:02	0.6028		0.1913
32	,N026257-002D,SAMP,5,	12:37:45	0.5385		0.1740
33	,BLANK,	12:38:27	-0.0063		0.0273
34	,CCV-2,CCV,1,	12:39:16	0.5173		0.1683
35	,CCB-2,CCB,1,	12:39:58	-0.0108		0.0261

10/13/17

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 10/7/17
Time Analyzed:10:21 AM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R171005B
Color reagent: R171005C
2% Copper Sulfate: R171005A
Ammonium Hydroxide: CINV-170919B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N026114-006C		8.85							
N026134-001C		8.01							
N026134-002C		6.38							
N026134-003C		7.94							
N026134-004C		7.92							
N026156-001C		7.98							
N026156-002C		8.13							
N026156-003C		7.85							
N026226-001C		7.79							
N026226-002C		8.02							
N026226-003C		8.67							
N026257-001D		8.80							
N026257-002D		8.78							

Advanced Technology Laboratories, Inc.
Book # 1

RB 10/13/17

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 64024
ASSET #: N026226

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/4/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X					
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments: Se not reported on this run

Mn is over-linear range at N026226-001B. For dilution.
%RSD od Se in N026226-003B failed. For rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	✓		
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 10/18/17

2nd Level Reviewer 10/18/2017 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 64024
ASSET #: N026226

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 10/16/2017

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

For Mn dilution only.
For Se and Cr rerun only.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 10/18/17

2nd Level Reviewer 10/18/2017 Date: ____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N026226-002B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 12.7556 * 1 * (25/25)

Chromium , ug/L = 12.7556

Reporting results in two significant figures,

Chromium , ug/L = 13

% RSD SUMMARY

PERCENT RSD SUMMARY: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	21.13	15	<PQL	0.14	16.5	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.53	4.52	15	PASS	0.5	5.19	15	PASS
Std3-5/50 ppb	ICAL	1	5.22	2.87	15	PASS	5.058	2.22	15	PASS
Std4-10/100 ppb	ICAL	1	10.16	2.27	15	PASS	10.22	2.8	15	PASS
Std5-20/200 ppb	ICAL	1	21.11	0.46	15	PASS	20.98	2.17	15	PASS
Std6-40/400 ppb	ICAL	1	40.26	1.33	15	PASS	40.54	3.019	15	PASS
Std7-100/1000 ppb	ICAL	1	100.97	1.65	15	PASS	101.22	1.7	15	PASS
Std8-200/2000 ppb	ICAL	1	199.34	1.17	15	PASS	199.17	1.39	15	PASS
ICV	ICV	1	10.33	1.43	15	PASS	101.82	1.93	15	PASS
ICB	ICB	1	0.014	80.27	15	<PQL	0.12	11.79	15	PASS
LLICV	CCV1	1	0.98	2.28	20	PASS	0.64	11.043	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	17.97	2.61	15	PASS	18.54	2.46	15	PASS
LLICV	CCV1	1	1.019	2.99	20	PASS	0.49	8.13	20	PASS
CCV1	CCV	1	20.55	0.59	15	PASS	20.59	0.34	15	PASS
CCB1	CCB	1	0.016	33.59	15	<PQL	0.079	19.73	15	<PQL
CCV2	CCV	1	20.84	2.33	15	PASS	20.74	2.19	15	PASS
CCB2	CCB	1	0.01	61.26	15	<PQL	<0.000	N/A	15	<PQL
MB-64024	MBLK	1	0.077	128.21	15	<PQL	<0.000	N/A	15	<PQL
LCS-64024	LCS	1	10.24	1.33	15	PASS	101.0086	1.17	15	PASS
N026224-001B	SAMP	1	0.61	12.57	15	PASS	12.27	1.61	15	PASS
N026224-001B	SAMP	5	0.16	24.69	15	<PQL	2.59	2.35	15	PASS
N026224-001B-PS	PS	1	9.88	1.36	15	PASS	102.92	2.82	15	PASS
CCV3	CCV	1	20.24	0.36	15	PASS	20.69	2.27	15	PASS
CCB3	CCB	1	0.0099	37.036	15	<PQL	0.029	32.39	15	<PQL
LLCCV1	CCV2	1	1.095	11.44	20	PASS	0.6	15.36	20	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.76	2.62	15	PASS	17.8	3.026	15	PASS
N026224-001B-MS	MS	1	9.68	2.12	15	PASS	102.7	0.34	15	PASS
N026224-001B-MSD	MSD	1	9.63	2.94	15	PASS	101.65	1.8	15	PASS
N026224-002B	SAMP	1	1.48	4.22	15	PASS	<0.000	N/A	15	<PQL
N026224-003B	SAMP	1	3.78	2.28	15	PASS	0.71	3.36	15	PASS
N026224-004B	SAMP	1	3.78	3.55	15	PASS	0.9	13.82	15	PASS
N026224-005B	SAMP	1	3.55	1.63	15	PASS	7.19	2.56	15	PASS
N026224-006B	SAMP	1	0.71	1.22	15	PASS	0.82	11.55	15	PASS
N026224-007B	SAMP	1	2.15	4.35	15	PASS	1.67	4.71	15	PASS
N026224-010B	SAMP	1	20.2	3.47	15	PASS	95.077	1.83	15	PASS
N026226-001B	SAMP	1	<0.000	N/A	15	<PQL	200.65	1.64	15	PASS
CCV4	CCV	1	20.18	2.72	15	PASS	20.76	3.23	15	PASS
CCB4	CCB	1	0.0095	234.59	15	<PQL	0.1	11.76	15	PASS

PERCENT RSD SUMMARY: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026226-002B	SAMP	1	12.76	1.88	15	PASS	7.63	1.91	15	PASS
N026226-003B	SAMP	1	6.048	4.19	15	PASS	18.12	3.78	15	PASS
N026254-001B	SAMP	1	1.75	1.29	15	PASS	0.48	8.7	15	PASS
N026254-002B	SAMP	1	0.57	5.2	15	PASS	1.0003	11.89	15	PASS
N026254-003B	SAMP	1	2.29	3.22	15	PASS	<0.000	N/A	15	<PQL
N026254-004B	SAMP	1	2.017	2.89	15	PASS	<0.000	N/A	15	<PQL
N026254-005B	SAMP	1	0.049	60.98	15	<PQL	44.65	1.51	15	PASS
N026254-006B	SAMP	1	1.84	0.93	15	PASS	5.51	2.9	15	PASS
N026254-007B	SAMP	1	1.68	3.05	15	PASS	<0.000	N/A	15	<PQL
N026254-008B	SAMP	1	<0.000	N/A	15	<PQL	71.87	1.14	15	PASS
CCV5	CCV	1	20.2	3.77	15	PASS	20.71	4.49	15	PASS
CCB5	CCB	1	0.0068	67.94	15	<PQL	0.014	87.38	15	<PQL
N026254-009B	SAMP	1	0.0016	897.063	15	<PQL	35.43	1.16	15	PASS
CCV6	CCV	1	20.59	1.78	15	PASS	20.88	1.71	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.44	11.39	15	PASS
CCV7	CCV	1	20.69	2.0078	15	PASS	20.73	1.18	15	PASS
CCB7	CCB	1	0.0043	271.82	15	<PQL	0.11	13.47	15	PASS
LLCCV2	CCV2	1	1	4.14	20	PASS	0.58	11.16	20	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.25	2.5	15	PASS	16.96	2.42	15	PASS
CCV8	CCV	1	20.39	2.72	15	PASS	20.33	1.33	15	PASS
CCB8	CCB	1	0.0037	324.054	15	<PQL	0.067	39.42	15	<PQL
CCV9	CCV	1	20.2	2.0023	15	PASS	20.42	1.97	15	PASS
CCB9	CCB	1	0.0025	83.27	15	<PQL	0.085	13.72	15	PASS
CCV10	CCV	1	20.39	5.14	15	PASS	20.76	2.67	15	PASS
CCB10	CCB	1	0.013	41.5	15	<PQL	0.11	39.13	15	<PQL
LLCCV3	CCV2	1	1.025	2.9	20	PASS	0.62	14.74	20	PASS
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.66	2.27	15	PASS	17.72	2.065	15	PASS

PERCENT RSD SUMMARY: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	32.42	15	NR!	0.15	60.12	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.52	15.56	15	NR!	0.43	21.44	15	<PQL
Std3-5/50 ppb	ICAL	1	5.02	3.61	15	PASS	4.76	32.75	15	NR!
Std4-10/100 ppb	ICAL	1	9.75	2.09	15	PASS	10.27	15.73	15	NR!
Std5-20/200 ppb	ICAL	1	20.51	5.88	15	PASS	18.87	10.46	15	PASS
Std6-40/400 ppb	ICAL	1	39.5	2.21	15	PASS	40.14	5.53	15	PASS
Std7-100/1000 ppb	ICAL	1	99.76	1.94	15	PASS	100.15	3.27	15	PASS
Std8-200/2000 ppb	ICAL	1	200.18	3.62	15	PASS	201.32	3.28	15	PASS
ICV	ICV	1	10.41	5.0047	15	PASS	10.63	9.031	15	PASS
ICB	ICB	1	0.05	79.35	15	<PQL	<0.000	0	15	PASS
LLICV	CCV1	1	0.12	37.13	20	NR!	0.37	12.96	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.12	85.72	15	<PQL
ICSAB1	ICSAB	1	17.56	3.64	15	PASS	17.72	3.53	15	PASS
LLICV	CCV1	1	0.13	26.49	20	NR!	0.55	58.56	20	NR!
CCV1	CCV	1	20.11	3.32	15	PASS	19.95	8.28	15	PASS
CCB1	CCB	1	0.033	152.96	15	<PQL	0.066	253.41	15	<PQL
CCV2	CCV	1	20.0098	0.59	15	PASS	18.72	6.87	15	PASS
CCB2	CCB	1	0.07	18.97	15	<PQL	<0.000	0	15	PASS
MB-64024	MBLK	1	0.013	201.85	15	<PQL	<0.000	N/A	15	<PQL
LCS-64024	LCS	1	10.028	3.33	15	PASS	10.45	3.99	15	PASS
N026224-001B	SAMP	1	1.69	6.77	15	PASS	0.3	71.33	15	<PQL
N026224-001B	SAMP	5	0.35	10.2	15	PASS	0.067	143.66	15	<PQL
N026224-001B-PS	PS	1	11.15	4.47	15	PASS	8.84	14.52	15	PASS
CCV3	CCV	1	19.59	2.091	15	PASS	20.029	3.88	15	PASS
CCB3	CCB	1	0.013	112.96	15	<PQL	0.067	145.16	15	<PQL
LLCCV1	CCV2	1	0.11	65.25	20	NR!	0.44	11.044	20	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.18	153.36	15	<PQL
ICSAB2	ICSAB	1	20.1	2.79	15	PASS	17.43	10.28	15	PASS
N026224-001B-MS	MS	1	11.25	7.14	15	PASS	8.22	7.093	15	PASS
N026224-001B-MSD	MSD	1	11.28	4.45	15	PASS	8.74	5.88	15	PASS
N026224-002B	SAMP	1	1.95	4.47	15	PASS	0.62	29.84	15	NR!
N026224-003B	SAMP	1	45.8	4.22	15	PASS	0.29	17.45	15	<PQL
N026224-004B	SAMP	1	35.77	0.92	15	PASS	0.14	122.56	15	<PQL
N026224-005B	SAMP	1	97.17	1.24	15	PASS	0.48	34.13	15	<PQL
N026224-006B	SAMP	1	93.82	3.66	15	PASS	0.11	43.76	15	<PQL
N026224-007B	SAMP	1	58.89	2.7	15	PASS	0.16	28.41	15	<PQL
N026224-010B	SAMP	1	348.41	1.047	15	PASS	<0.000	N/A	15	<PQL
N026226-001B	SAMP	1	1.42	2.3	15	PASS	0.00024	22235.87	15	<PQL
CCV4	CCV	1	20.1	4.79	15	PASS	19.11	7.19	15	PASS
CCB4	CCB	1	0.042	30.47	15	<PQL	<0.000	0	15	PASS

PERCENT RSD SUMMARY: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026226-002B	SAMP	1	5.39	1.65	15	PASS	0.2	27.7	15	<PQL
N026226-003B	SAMP	1	1.76	4.39	15	PASS	0.61	46.37	15	NR!
N026254-001B	SAMP	1	120.034	2.13	15	PASS	0.21	90.43	15	<PQL
N026254-002B	SAMP	1	111.88	0.8	15	PASS	0.14	3.25	15	PASS
N026254-003B	SAMP	1	0.97	10.57	15	PASS	1.052	59.069	15	NR!
N026254-004B	SAMP	1	1.82	13.53	15	PASS	0.024	389.46	15	<PQL
N026254-005B	SAMP	1	12.08	6.78	15	PASS	<0.000	N/A	15	<PQL
N026254-006B	SAMP	1	0.92	15.1	15	NR!	0.42	33.014	15	<PQL
N026254-007B	SAMP	1	2.9	6.15	15	PASS	0.17	27.14	15	<PQL
N026254-008B	SAMP	1	2.2	6.13	15	PASS	0.97	38.044	15	NR!
CCV5	CCV	1	21.047	2.44	15	PASS	18.14	0.72	15	PASS
CCB5	CCB	1	0.045	126.051	15	<PQL	<0.000	0	15	PASS
N026254-009B	SAMP	1	2.04	6.1	15	PASS	<0.000	0	15	PASS
CCV6	CCV	1	19.94	1.96	15	PASS	19.99	6.57	15	PASS
CCB6	CCB	1	0.0012	2311.64	15	<PQL	0.066	144.37	15	<PQL
CCV7	CCV	1	20.34	3.29	15	PASS	18.42	0.79	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	0	15	PASS
LLCCV2	CCV2	1	0.098	43.69	20	<PQL	0.27	24.04	20	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.0093	742.6	15	<PQL
ICSAB3	ICSAB	1	20.23	4.91	15	PASS	18.82	8.76	15	PASS
CCV8	CCV	1	19.54	0.45	15	PASS	20.47	5.31	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.0059	1066.12	15	<PQL
CCV9	CCV	1	20.38	4.23	15	PASS	20.85	4.87	15	PASS
CCB9	CCB	1	0.0049	529.24	15	<PQL	0.0067	961.4	15	<PQL
CCV10	CCV	1	19.23	3.89	15	PASS	18.014	11.59	15	PASS
CCB10	CCB	1	0.0078	533.39	15	<PQL	0.0057	1097.21	15	<PQL
LLCCV3	CCV2	1	0.1	7.63	20	PASS	0.72	39.43	20	NR!
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	0.045	144.83	15	<PQL
ICSAB4	ICSAB	1	19.74	2.25	15	PASS	17.3	5.18	15	PASS

PERCENT RSD SUMMARY: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.085	25.17	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.52	12.74	15	PASS
Std3-5/50 ppb	ICAL	1	4.85	2.99	15	PASS
Std4-10/100 ppb	ICAL	1	9.65	2.84	15	PASS
Std5-20/200 ppb	ICAL	1	19.086	1.34	15	PASS
Std6-40/400 ppb	ICAL	1	38.63	1.48	15	PASS
Std7-100/1000 ppb	ICAL	1	98.067	0.086	15	PASS
Std8-200/2000 ppb	ICAL	1	201.35	1.16	15	PASS
ICV	ICV	1	10.71	1.97	15	PASS
ICB	ICB	1	0.14	26.94	15	<PQL
LLICV	CCV1	1	0.58	16.12	20	PASS
ICSA1	ICSA	1	0.19	12.063	15	PASS
ICSAB1	ICSAB	1	19.29	0.73	15	PASS
LLICV	CCV1	1	0.5	12.27	20	PASS
CCV1	CCV	1	19.38	1.31	15	PASS
CCB1	CCB	1	0.09	31.76	15	<PQL
CCV2	CCV	1	19.45	1.046	15	PASS
CCB2	CCB	1	0.065	23.48	15	<PQL
MB-64024	MBLK	1	0.0035	91.33	15	<PQL
LCS-64024	LCS	1	9.95	5.17	15	PASS
N026224-001B	SAMP	1	1.89	4.29	15	PASS
N026224-001B	SAMP	5	0.33	16.33	15	<PQL
N026224-001B-PS	PS	1	12.12	1.53	15	PASS
CCV3	CCV	1	19.27	1.31	15	PASS
CCB3	CCB	1	0.083	7.21	15	PASS
LLCCV1	CCV2	1	0.61	1.6	20	PASS
ICSA2	ICSA	1	0.14	8.72	15	PASS
ICSAB2	ICSAB	1	21.072	0.86	15	PASS
N026224-001B-MS	MS	1	12.21	3.74	15	PASS
N026224-001B-MSD	MSD	1	12.017	3.3	15	PASS
N026224-002B	SAMP	1	2.3	4.082	15	PASS
N026224-003B	SAMP	1	7.61	1.11	15	PASS
N026224-004B	SAMP	1	9.82	1.52	15	PASS
N026224-005B	SAMP	1	13.51	2.49	15	PASS
N026224-006B	SAMP	1	8.37	2.63	15	PASS
N026224-007B	SAMP	1	7.17	3.5	15	PASS
N026224-010B	SAMP	1	55.18	1.86	15	PASS
N026226-001B	SAMP	1	19.81	2.18	15	PASS
CCV4	CCV	1	19.33	2.32	15	PASS
CCB4	CCB	1	0.12	24.32	15	<PQL

PERCENT RSD SUMMARY: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N026226-002B	SAMP	1	78.62	0.31	15	PASS
N026226-003B	SAMP	1	159.44	1.46	15	PASS
N026254-001B	SAMP	1	9.33	1.81	15	PASS
N026254-002B	SAMP	1	8.18	4.8	15	PASS
N026254-003B	SAMP	1	1.63	3.25	15	PASS
N026254-004B	SAMP	1	4.17	5.23	15	PASS
N026254-005B	SAMP	1	5.78	3.33	15	PASS
N026254-006B	SAMP	1	0.83	6.75	15	PASS
N026254-007B	SAMP	1	0.85	11.71	15	PASS
N026254-008B	SAMP	1	10.3	4.15	15	PASS
CCV5	CCV	1	19.4	1.54	15	PASS
CCB5	CCB	1	0.074	50.52	15	<PQL
N026254-009B	SAMP	1	20.9	2.26	15	PASS
CCV6	CCV	1	19.42	0.0054	15	PASS
CCB6	CCB	1	0.051	18.92	15	<PQL
CCV7	CCV	1	19.17	1.28	15	PASS
CCB7	CCB	1	0.089	19.64	15	<PQL
LLCCV2	CCV2	1	0.48	6.2	20	PASS
ICSA3	ICSA	1	0.12	10.081	15	PASS
ICSAB3	ICSAB	1	20.83	1.21	15	PASS
CCV8	CCV	1	18.92	1.78	15	PASS
CCB8	CCB	1	0.088	17.73	15	<PQL
CCV9	CCV	1	18.85	4.38	15	PASS
CCB9	CCB	1	0.079	17.077	15	<PQL
CCV10	CCV	1	19.41	2.8	15	PASS
CCB10	CCB	1	0.2	31.38	15	<PQL
LLCCV3	CCV2	1	0.55	0.36	20	PASS
ICSA4	ICSA	1	0.13	45.63	15	<PQL
ICSAB4	ICSAB	1	20.46	2.36	15	PASS

PERCENT RSD SUMMARY: 171016A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	5.036	15	PASS	0.15	2.16	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.63	10.49	15	PASS	0.57	4.98	15	PASS
Std3-5/50 ppb	ICAL	1	5.15	0.91	15	PASS	5.15	1.85	15	PASS
Std4-10/100 ppb	ICAL	1	10.17	1.59	15	PASS	10.12	1.92	15	PASS
Std5-20/200 ppb	ICAL	1	20.49	1.62	15	PASS	20.42	1.76	15	PASS
Std6-40/400 ppb	ICAL	1	40.45	1.23	15	PASS	40.52	0.55	15	PASS
Std7-100/1000 ppb	ICAL	1	100.33	1.0067	15	PASS	98.37	0.76	15	PASS
Std8-200/2000 ppb	ICAL	1	199.68	0.13	15	PASS	200.66	0.81	15	PASS
ICV	ICV	1	10.17	0.072	15	PASS	100.45	0.53	15	PASS
ICB	ICB	1	0.06	21.025	15	<PQL	0.053	7.73	15	PASS
LLICV	CCV1	1	1.0013	4.18	20	PASS	0.52	5.08	20	PASS
ICSA1	ICSA	1	0.042	13.73	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.46	0.82	15	PASS	16.83	0.6	15	PASS
LLICV	CCV1	1	1.026	0.76	20	PASS	0.51	6.21	20	PASS
MB-64024	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-64024	LCS	1	10.16	1.98	15	PASS	101.14	0.94	15	PASS
N026224-001B	SAMP	1	0.68	5.97	15	PASS	13.43	1.62	15	PASS
N026224-001B	SAMP	5	0.13	7.65	15	PASS	2.89	1.23	15	PASS
N026224-001B-PS	PS	1	9.76	0.71	15	PASS	103.93	1.33	15	PASS
N026224-001B-MS	MS	1	9.89	1.12	15	PASS	103.73	0.65	15	PASS
N026224-001B-MSD	MSD	1	9.85	0.3	15	PASS	103.55	0.55	15	PASS
N026226-001B	SAMP	1	0.33	68.12	15	<PQL	207.67	1.34	15	PASS
N026226-001B	SAMP	5	0.0052	178.52	15	<PQL	46.76	1.11	15	PASS
N026226-002B	SAMP	1	13.55	0.67	15	PASS	2.87	0.25	15	PASS
CCV1	CCV	1	20.14	0.89	15	PASS	20.29	1.17	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026226-003B	SAMP	1	7.24	0.84	15	PASS	10.047	1	15	PASS
N026226-003B	SAMP	5	1.47	1.77	15	PASS	3.4	0.7	15	PASS
CCV2	CCV	1	19.98	1.52	15	PASS	20.29	0.48	15	PASS
CCB2	CCB	1	0.0066	56.88	15	<PQL	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.2	1.088	15	PASS	20.26	0.6	15	PASS
CCB3	CCB	1	0.011	69.18	15	<PQL	<0.000	N/A	15	<PQL
LLCCV1	CCV2	1	1.016	1.11	20	PASS	0.55	2.31	20	PASS
ICSA2	ICSA	1	0.039	21.34	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.39	1.43	15	PASS	16.27	1.21	15	PASS
CCV4	CCV	1	20.61	1.79	15	PASS	20.54	1.24	15	PASS
CCB4	CCB	1	0.0049	61.63	15	<PQL	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.68	0.95	15	PASS	20.58	0.37	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLCCV2	CCV2	1	1.017	2.4	20	PASS	0.51	2.3	20	PASS

PERCENT RSD SUMMARY: 171016A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA3	ICSA	1	0.028	50.4	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.68	0.45	15	PASS	16.52	1.026	15	PASS

PERCENT RSD SUMMARY: 171016A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	31.69	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	17.63	15	<PQL
Std3-5/50 ppb	ICAL	1	5.077	4.95	15	PASS
Std4-10/100 ppb	ICAL	1	10.052	1.2	15	PASS
Std5-20/200 ppb	ICAL	1	19.95	0.97	15	PASS
Std6-40/400 ppb	ICAL	1	40.6	0.83	15	PASS
Std7-100/1000 ppb	ICAL	1	100.73	0.67	15	PASS
Std8-200/2000 ppb	ICAL	1	199.52	0.74	15	PASS
ICV	ICV	1	10.25	3.89	15	PASS
ICB	ICB	1	0.019	32.21	15	<PQL
LLICV	CCV1	1	0.47	2.34	20	PASS
ICSA1	ICSA	1	0.094	18.88	15	<PQL
ICSAB1	ICSAB	1	19.039	1.03	15	PASS
LLICV	CCV1	1	0.44	6.75	20	PASS
MB-64024	MBLK	1	<0.000	N/A	15	<PQL
LCS-64024	LCS	1	10.12	1.48	15	PASS
N026224-001B	SAMP	1	0.33	10.97	15	PASS
N026224-001B	SAMP	5	0.05	23.15	15	<PQL
N026224-001B-PS	PS	1	9.29	1.44	15	PASS
N026224-001B-MS	MS	1	9.4	1.59	15	PASS
N026224-001B-MSD	MSD	1	9.25	3.067	15	PASS
N026226-001B	SAMP	1	0.12	25.8	15	<PQL
N026226-001B	SAMP	5	0.021	31.27	15	<PQL
N026226-002B	SAMP	1	0.18	10.47	15	PASS
CCV1	CCV	1	20.067	2.91	15	PASS
CCB1	CCB	1	0.017	46.82	15	<PQL
N026226-003B	SAMP	1	0.82	14.26	15	PASS
N026226-003B	SAMP	5	0.12	9.085	15	PASS
CCV2	CCV	1	19.93	1.86	15	PASS
CCB2	CCB	1	0.021	78.88	15	<PQL
CCV3	CCV	1	20.45	2.25	15	PASS
CCB3	CCB	1	0.0062	75.81	15	<PQL
LLCCV1	CCV2	1	0.46	5.65	20	PASS
ICSA2	ICSA	1	0.069	22.55	15	<PQL
ICSAB2	ICSAB	1	19.45	1.56	15	PASS
CCV4	CCV	1	20.19	2.56	15	PASS
CCB4	CCB	1	0.019	46.5	15	<PQL
CCV5	CCV	1	20.57	1.56	15	PASS
CCB5	CCB	1	0.024	63.87	15	<PQL
LLCCV2	CCV2	1	0.46	8.27	20	PASS

PERCENT RSD SUMMARY: 171016A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
ICSA3	ICSA	1	0.065	7.21	15	PASS
ICSAB3	ICSAB	1	19.19	1.26	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 171004B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1004001.D	RINSE	RINSE	1	10/04/17 12:47 PM
B1004002.D	Cal Blank	IBLK	1	10/04/17 12:53 PM
B1004003.D	Std1-0.1/1 ppb	ICAL	1	10/04/17 12:58 PM
B1004004.D	Std2-0.5/5 ppb	ICAL	1	10/04/17 1:04 PM
B1004005.D	Std3-5/50 ppb	ICAL	1	10/04/17 1:10 PM
B1004006.D	Std4-10/100 ppb	ICAL	1	10/04/17 1:15 PM
B1004007.D	Std5-20/200 ppb	ICAL	1	10/04/17 1:21 PM
B1004008.D	Std6-40/400 ppb	ICAL	1	10/04/17 1:26 PM
B1004009.D	Std7-100/1000 ppb	ICAL	1	10/04/17 1:32 PM
B1004010.D	Std8-200/2000 ppb	ICAL	1	10/04/17 1:38 PM
B1004011.D	ICV	ICV	1	10/04/17 1:43 PM
B1004012.D	ICB	ICB	1	10/04/17 1:49 PM
B1004013.D	LLICV	CCV1	1	10/04/17 1:54 PM
B1004014.D	ICSA1	ICSA	1	10/04/17 2:00 PM
B1004015.D	ICSAB1	ICSAB	1	10/04/17 2:05 PM
B1004016.D	LLICV	CCV1	1	10/04/17 2:22 PM
B1004017.D	MB-64023	MBLK	1	10/04/17 2:28 PM
B1004018.D	LCS-64023	LCS	1	10/04/17 2:33 PM
B1004019.D	N026225-001B	SAMP	1	10/04/17 2:39 PM
B1004020.D	N026225-001B	SAMP	5	10/04/17 2:44 PM
B1004021.D	N026225-001B-PS	PS	1	10/04/17 2:50 PM
B1004022.D	N026225-001B-MS	MS	1	10/04/17 2:56 PM
B1004023.D	N026225-001B-MSD	MSD	1	10/04/17 3:01 PM
B1004024.D	N026225-002B	SAMP	1	10/04/17 3:07 PM
B1004025.D	N026225-003B	SAMP	1	10/04/17 3:13 PM
B1004026.D	N026225-004B	SAMP	1	10/04/17 3:19 PM
B1004027.D	CCV1	CCV	1	10/04/17 3:25 PM
B1004028.D	CCB1	CCB	1	10/04/17 3:30 PM
B1004029.D	N026225-005B	SAMP	1	10/04/17 3:36 PM
B1004030.D	N026225-006B	SAMP	1	10/04/17 3:41 PM
B1004031.D	N026225-007B	SAMP	1	10/04/17 3:47 PM
B1004032.D	N026251-001B	SAMP	1	10/04/17 3:52 PM
B1004033.D	N026251-002B	SAMP	1	10/04/17 3:58 PM
B1004034.D	N026251-003B	SAMP	1	10/04/17 4:03 PM
B1004035.D	N026251-004B	SAMP	1	10/04/17 4:09 PM
B1004036.D	N026251-005B	SAMP	1	10/04/17 4:15 PM
B1004037.D	N026251-006B	SAMP	1	10/04/17 4:20 PM
B1004038.D	N026251-007B	SAMP	1	10/04/17 4:26 PM
B1004039.D	CCV2	CCV	1	10/04/17 4:31 PM
B1004040.D	CCB2	CCB	1	10/04/17 4:37 PM
B1004041.D	N026251-008B	SAMP	1	10/04/17 4:42 PM
B1004042.D	N026251-009B	SAMP	1	10/04/17 4:48 PM

INJECTION LOG: 171004B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1004043.D	N026251-010B	SAMP	1	10/04/17 4:53 PM
B1004044.D	N026251-011B	SAMP	1	10/04/17 4:59 PM
B1004045.D	N026251-012B	SAMP	1	10/04/17 5:05 PM
B1004046.D	MB-64024	MBLK	1	10/04/17 5:10 PM
B1004047.D	LCS-64024	LCS	1	10/04/17 5:16 PM
B1004048.D	N026224-001B	SAMP	1	10/04/17 5:21 PM
B1004049.D	N026224-001B	SAMP	5	10/04/17 5:27 PM
B1004050.D	N026224-001B-PS	PS	1	10/04/17 5:33 PM
B1004051.D	CCV3	CCV	1	10/04/17 5:39 PM
B1004052.D	CCB3	CCB	1	10/04/17 5:44 PM
B1004053.D	LLCCV1	CCV2	1	10/04/17 5:51 PM
B1004054.D	ICSA2	ICSA	1	10/04/17 5:57 PM
B1004055.D	ICSAB2	ICSAB	1	10/04/17 6:02 PM
B1004056.D	N026224-001B-MS	MS	1	10/04/17 6:08 PM
B1004057.D	N026224-001B-MSD	MSD	1	10/04/17 6:13 PM
B1004058.D	N026224-002B	SAMP	1	10/04/17 6:20 PM
B1004059.D	N026224-003B	SAMP	1	10/04/17 6:26 PM
B1004060.D	N026224-004B	SAMP	1	10/04/17 6:31 PM
B1004061.D	N026224-005B	SAMP	1	10/04/17 6:37 PM
B1004062.D	N026224-006B	SAMP	1	10/04/17 6:43 PM
B1004063.D	N026224-007B	SAMP	1	10/04/17 6:48 PM
B1004064.D	N026224-010B	SAMP	1	10/04/17 6:54 PM
B1004065.D	N026226-001B	SAMP	1	10/04/17 6:59 PM
B1004066.D	CCV4	CCV	1	10/04/17 7:05 PM
B1004067.D	CCB4	CCB	1	10/04/17 7:10 PM
B1004068.D	N026226-002B	SAMP	1	10/04/17 7:16 PM
B1004069.D	N026226-003B	SAMP	1	10/04/17 7:21 PM
B1004070.D	N026254-001B	SAMP	1	10/04/17 7:27 PM
B1004071.D	N026254-002B	SAMP	1	10/04/17 7:33 PM
B1004072.D	N026254-003B	SAMP	1	10/04/17 7:38 PM
B1004073.D	N026254-004B	SAMP	1	10/04/17 7:44 PM
B1004074.D	N026254-005B	SAMP	1	10/04/17 7:49 PM
B1004075.D	N026254-006B	SAMP	1	10/04/17 7:55 PM
B1004076.D	N026254-007B	SAMP	1	10/04/17 8:00 PM
B1004077.D	N026254-008B	SAMP	1	10/04/17 8:06 PM
B1004078.D	CCV5	CCV	1	10/04/17 8:12 PM
B1004079.D	CCB5	CCB	1	10/04/17 8:17 PM
B1004080.D	N026254-009B	SAMP	1	10/04/17 8:23 PM
B1004081.D	MB-64020	MBLK	1	10/04/17 8:28 PM
B1004082.D	LCS-64020	LCS	1	10/04/17 8:33 PM
B1004083.D	N026229-001D	SAMP	1	10/04/17 8:39 PM
B1004084.D	N026229-001D	SAMP	5	10/04/17 8:45 PM

INJECTION LOG: 171004B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1004085.D	N026229-001D	SAMP	25	10/04/17 8:50 PM
B1004086.D	N026237-002D	SAMP	1	10/04/17 8:56 PM
B1004087.D	N026237-002D	SAMP	5	10/04/17 9:01 PM
B1004088.D	N026237-002D	SAMP	25	10/04/17 9:07 PM
B1004089.D	N026240-001A	SAMP	1	10/04/17 9:13 PM
B1004090.D	CCV6	CCV	1	10/04/17 9:18 PM
B1004091.D	CCB6	CCB	1	10/04/17 9:24 PM
B1004092.D	N026240-001A	SAMP	5	10/04/17 9:29 PM
B1004093.D	N026240-001A	SAMP	25	10/04/17 9:34 PM
B1004094.D	N026242-005A	SAMP	1	10/04/17 9:40 PM
B1004095.D	N026242-005A	SAMP	5	10/04/17 9:46 PM
B1004096.D	N026242-005A	SAMP	25	10/04/17 9:51 PM
B1004097.D	N026242-005A	SAMP	125	10/04/17 9:57 PM
B1004098.D	N026242-005A-MS	MS	1	10/04/17 10:02 PM
B1004099.D	N026242-005A-MS	MS	5	10/04/17 10:08 PM
B1004100.D	N026242-005A-MSD	MSD	1	10/04/17 10:13 PM
B1004101.D	N026242-005A-MSD	MSD	5	10/04/17 10:19 PM
B1004102.D	CCV7	CCV	1	10/04/17 10:25 PM
B1004103.D	CCB7	CCB	1	10/04/17 10:30 PM
B1004104.D	LLCCV2	CCV2	1	10/04/17 10:36 PM
B1004105.D	ICSA3	ICSA	1	10/04/17 10:41 PM
B1004106.D	ICSAB3	ICSAB	1	10/04/17 10:47 PM
B1004107.D	N026242-005A-MS	MS	25	10/04/17 10:53 PM
B1004108.D	N026242-005A-MSD	MSD	25	10/04/17 10:58 PM
B1004109.D	N026242-005A-PS	PS	1	10/04/17 11:04 PM
B1004110.D	N026242-005A-PS	PS	5	10/04/17 11:09 PM
B1004111.D	N026242-005A-PS	PS	25	10/04/17 11:15 PM
B1004112.D	N026242-010A	SAMP	1	10/04/17 11:20 PM
B1004113.D	N026242-010A	SAMP	5	10/04/17 11:26 PM
B1004114.D	N026242-010A	SAMP	25	10/04/17 11:32 PM
B1004115.D	N026242-015A	SAMP	1	10/04/17 11:37 PM
B1004116.D	N026242-015A	SAMP	5	10/04/17 11:43 PM
B1004117.D	CCV8	CCV	1	10/04/17 11:48 PM
B1004118.D	CCB8	CCB	1	10/04/17 11:54 PM
B1004119.D	N026242-015A	SAMP	25	10/05/17 12:00 AM
B1004120.D	N026242-020A	SAMP	1	10/05/17 12:05 AM
B1004121.D	N026242-020A	SAMP	5	10/05/17 12:11 AM
B1004122.D	N026242-020A	SAMP	25	10/05/17 12:17 AM
B1004123.D	N026242-025A	SAMP	1	10/05/17 12:23 AM
B1004124.D	N026242-025A	SAMP	5	10/05/17 12:28 AM
B1004125.D	N026242-025A	SAMP	25	10/05/17 12:34 AM
B1004126.D	N026242-030A	SAMP	1	10/05/17 12:40 AM

INJECTION LOG: 171004B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B1004127.D	N026242-030A	SAMP	5	10/05/17 12:45 AM
B1004128.D	N026242-030A	SAMP	25	10/05/17 12:51 AM
B1004129.D	CCV9	CCV	1	10/05/17 12:56 AM
B1004130.D	CCB9	CCB	1	10/05/17 1:02 AM
B1004131.D	N026242-035A	SAMP	1	10/05/17 1:07 AM
B1004132.D	N026242-035A	SAMP	5	10/05/17 1:13 AM
B1004133.D	N026242-035A	SAMP	25	10/05/17 1:19 AM
B1004134.D	N026242-040A	SAMP	1	10/05/17 1:25 AM
B1004135.D	N026242-040A	SAMP	5	10/05/17 1:30 AM
B1004136.D	N026242-040A	SAMP	25	10/05/17 1:36 AM
B1004137.D	CCV10	CCV	1	10/05/17 1:42 AM
B1004138.D	CCB10	CCB	1	10/05/17 1:47 AM
B1004139.D	LLCCV3	CCV2	1	10/05/17 1:53 AM
B1004140.D	ICSA4	ICSA	1	10/05/17 1:58 AM
B1004141.D	ICSAB4	ICSAB	1	10/05/17 2:04 AM

INJECTION LOG: 171016A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1016001.D	RINSE	RINSE	1	10/16/17 10:43 AM
A1016002.D	Cal Blank	IBLK	1	10/16/17 10:48 AM
A1016003.D	Std1-0.1/1 ppb	ICAL	1	10/16/17 10:54 AM
A1016004.D	Std2-0.5/5 ppb	ICAL	1	10/16/17 11:00 AM
A1016005.D	Std3-5/50 ppb	ICAL	1	10/16/17 11:05 AM
A1016006.D	Std4-10/100 ppb	ICAL	1	10/16/17 11:11 AM
A1016007.D	Std5-20/200 ppb	ICAL	1	10/16/17 11:16 AM
A1016008.D	Std6-40/400 ppb	ICAL	1	10/16/17 11:22 AM
A1016009.D	Std7-100/1000 ppb	ICAL	1	10/16/17 11:27 AM
A1016010.D	Std8-200/2000 ppb	ICAL	1	10/16/17 11:33 AM
A1016011.D	ICV	ICV	1	10/16/17 11:38 AM
A1016012.D	ICB	ICB	1	10/16/17 11:45 AM
A1016013.D	LLICV	CCV1	1	10/16/17 11:50 AM
A1016014.D	ICSA1	ICSA	1	10/16/17 11:56 AM
A1016015.D	ICSAB1	ICSAB	1	10/16/17 12:01 PM
A1016016.D	LLICV	CCV1	1	10/16/17 12:11 PM
A1016017.D	MB-64024	MBLK	1	10/16/17 12:16 PM
A1016018.D	LCS-64024	LCS	1	10/16/17 12:22 PM
A1016019.D	N026224-001B	SAMP	1	10/16/17 12:27 PM
A1016020.D	N026224-001B	SAMP	5	10/16/17 12:33 PM
A1016021.D	N026224-001B-PS	PS	1	10/16/17 12:38 PM
A1016022.D	N026224-001B-MS	MS	1	10/16/17 12:44 PM
A1016023.D	N026224-001B-MSD	MSD	1	10/16/17 12:50 PM
A1016024.D	N026226-001B	SAMP	1	10/16/17 12:55 PM
A1016025.D	N026226-001B	SAMP	5	10/16/17 1:01 PM
A1016026.D	N026226-002B	SAMP	1	10/16/17 1:08 PM
A1016027.D	CCV1	CCV	1	10/16/17 1:14 PM
A1016028.D	CCB1	CCB	1	10/16/17 1:20 PM
A1016029.D	N026226-003B	SAMP	1	10/16/17 1:25 PM
A1016030.D	N026226-003B	SAMP	5	10/16/17 1:31 PM
A1016031.D	MB-64036	MBLK	1	10/16/17 1:37 PM
A1016032.D	LCS-64036	LCS	1	10/16/17 1:42 PM
A1016033.D	N026256-001B	SAMP	1	10/16/17 1:48 PM
A1016034.D	N026256-001B	SAMP	5	10/16/17 1:54 PM
A1016035.D	N026256-001B-PS	PS	1	10/16/17 1:59 PM
A1016036.D	N026256-001B-MS	MS	1	10/16/17 2:05 PM
A1016037.D	N026256-001B-MSD	MSD	1	10/16/17 2:10 PM
A1016038.D	N026256-002B	SAMP	1	10/16/17 2:16 PM
A1016039.D	CCV2	CCV	1	10/16/17 2:21 PM
A1016040.D	CCB2	CCB	1	10/16/17 2:27 PM
A1016041.D	N026257-001E	SAMP	1	10/16/17 2:35 PM
A1016042.D	N026441-001B	SAMP	1	10/16/17 2:40 PM

INJECTION LOG: 171016A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A1016043.D	N026257-001E	SAMP	5	10/16/17 2:46 PM
A1016044.D	N026441-001B	SAMP	5	10/16/17 2:52 PM
A1016045.D	N026257-002E	SAMP	1	10/16/17 3:59 PM
A1016046.D	N026257-002E	SAMP	5	10/16/17 4:04 PM
A1016047.D	N026257-003C	SAMP	1	10/16/17 4:22 PM
A1016048.D	N026257-003C	SAMP	5	10/16/17 4:28 PM
A1016049.D	N026257-003C	SAMP	25	10/16/17 4:33 PM
A1016050.D	N026256-001B	SAMP	25	10/16/17 4:39 PM
A1016051.D	CCV3	CCV	1	10/16/17 4:44 PM
A1016052.D	CCB3	CCB	1	10/16/17 4:50 PM
A1016053.D	LLCCV1	CCV2	1	10/16/17 4:55 PM
A1016054.D	ICSA2	ICSA	1	10/16/17 5:01 PM
A1016055.D	ICSAB2	ICSAB	1	10/16/17 5:07 PM
A1016056.D	N026256-001B-PS	PS	5	10/16/17 5:12 PM
A1016057.D	N026256-001B-MS	MS	5	10/16/17 5:18 PM
A1016058.D	N026256-001B-MSD	MSD	5	10/16/17 5:23 PM
A1016059.D	N026256-002B	SAMP	5	10/16/17 5:29 PM
A1016060.D	MB-64049	MBLK	1	10/16/17 5:34 PM
A1016061.D	LCS-64049	LCS	1	10/16/17 5:40 PM
A1016062.D	N026275-001B	SAMP	1	10/16/17 5:45 PM
A1016063.D	N026275-001B	SAMP	5	10/16/17 5:51 PM
A1016064.D	N026275-001B-PS	PS	1	10/16/17 5:56 PM
A1016065.D	N026275-001B-MS	MS	1	10/16/17 6:02 PM
A1016066.D	CCV4	CCV	1	10/16/17 6:08 PM
A1016067.D	CCB4	CCB	1	10/16/17 6:13 PM
A1016068.D	N026275-001B-MSD	MSD	1	10/16/17 6:19 PM
A1016069.D	CCV5	CCV	1	10/16/17 6:24 PM
A1016070.D	CCB5	CCB	1	10/16/17 6:30 PM
A1016071.D	LLCCV2	CCV2	1	10/16/17 6:35 PM
A1016072.D	ICSA3	ICSA	1	10/16/17 6:41 PM
A1016073.D	ICSAB3	ICSAB	1	10/16/17 6:46 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/4/2017 7:48:06 A**
Prep End Date: **10/4/2017 12:00:15**
Prep Batch **64024** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 10/18/2017
Initials/ Date: 10/18/2017
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**02-17**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-64024	Aqueous		25	☐	0	0	25	1.000		
MB-64024	Aqueous		25	☐	0	0	25	1.000		
N026224-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N026224-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N026226-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026226-002B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/4/2017 7:48:06 A**
Prep End Date: **10/4/2017 12:00:15**

Reviewed/ Date: 10/18/2017

Initials/ Date: 10/18/2017

Prep Batch **64024** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**02-17**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N026226-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N026254-009B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 4 Oct 2017 09:12:01 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	52996.20	0.00	
24 Mg	118318.00	0.00	
25 Mg	15066.90	0.00	
26 Mg	17317.00	0.00	
59 Co	81464.10	0.00	
115 In	111927.00	0.00	
206 Pb	42698.20	0.00	
207 Pb	37473.90	0.00	
208 Pb	93010.10	0.00	

RSD (%)

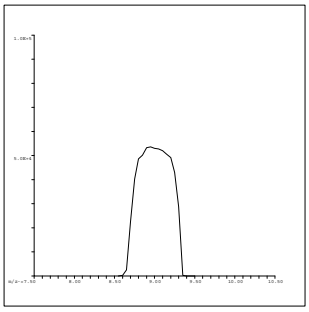
Element	Actual	Required	Flag
9 Be	0.56	5.00	
24 Mg	1.62	5.00	
25 Mg	1.98	5.00	
26 Mg	1.40	5.00	
59 Co	0.86	5.00	
115 In	0.67	5.00	
206 Pb	1.02	5.00	
207 Pb	1.78	5.00	
208 Pb	1.01	5.00	

Ion Ratio

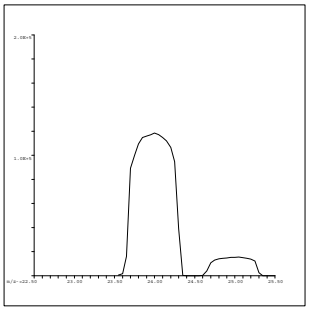
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

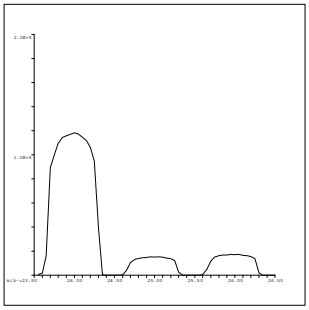
Element	Actual	Required	Flag



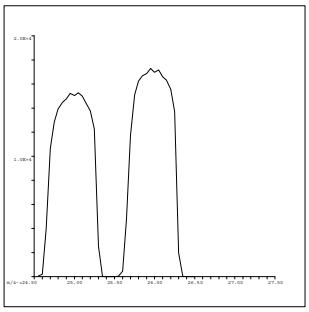
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



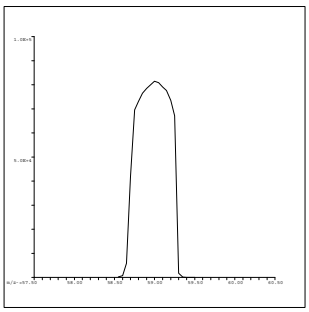
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



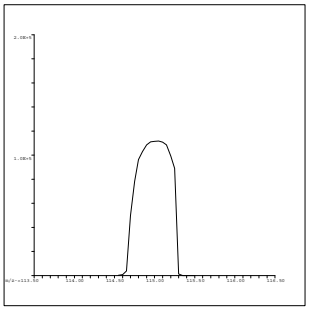
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



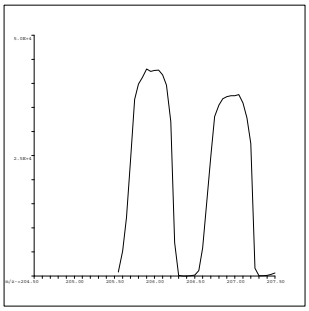
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



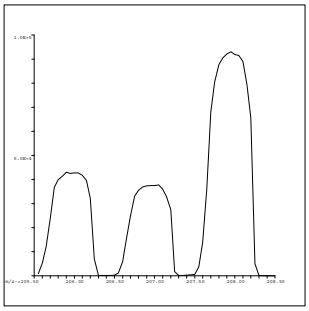
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



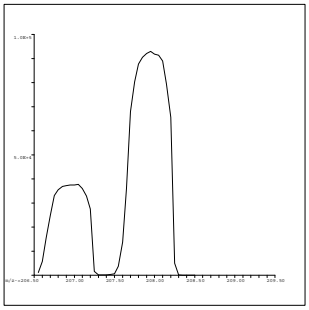
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 16 Oct 2017 10:29:19 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	170945.00	0.00	
24 Mg	458709.00	0.00	
25 Mg	60618.10	0.00	
26 Mg	69929.90	0.00	
59 Co	530533.00	0.00	
115 In	813581.00	0.00	
206 Pb	257134.00	0.00	
207 Pb	224549.00	0.00	
208 Pb	556257.00	0.00	

RSD (%)

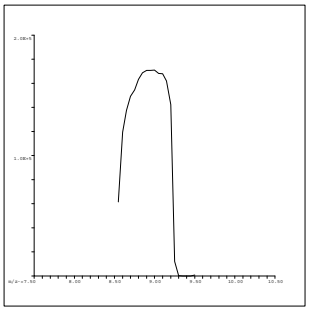
Element	Actual	Required	Flag
9 Be	0.63	5.00	
24 Mg	1.37	5.00	
25 Mg	0.52	5.00	
26 Mg	0.78	5.00	
59 Co	0.34	5.00	
115 In	0.67	5.00	
206 Pb	0.92	5.00	
207 Pb	0.46	5.00	
208 Pb	0.68	5.00	

Ion Ratio

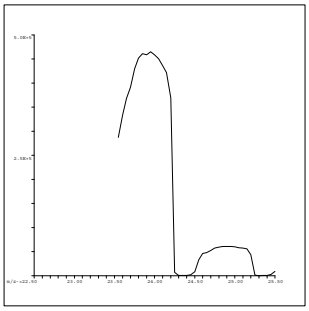
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

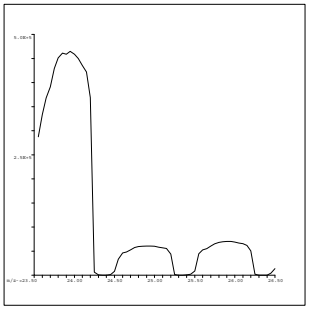
Element	Actual	Required	Flag



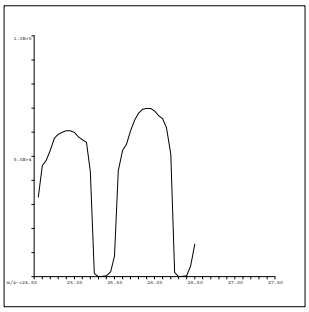
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



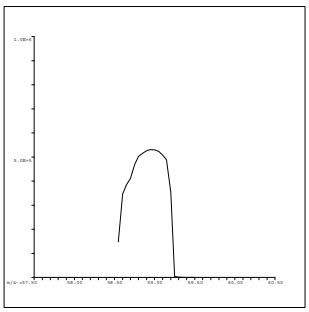
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



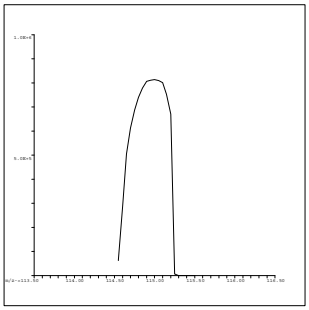
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



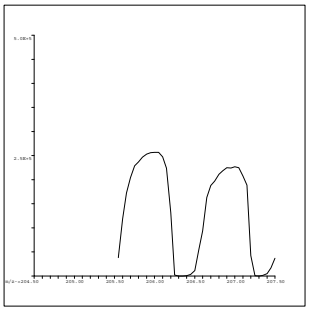
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



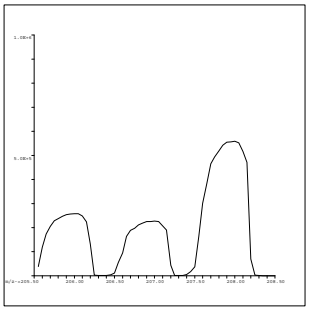
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



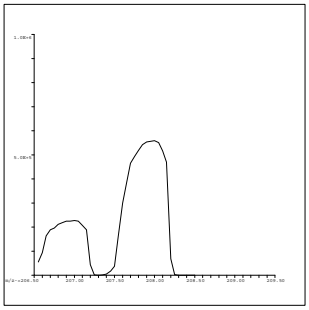
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 171004B

Instrument ID: ICPMS-02

Analyte	Data File	B1004002.D	B1004003.D	B1004004.D	B1004005.D	B1004006.D	B1004007.D	B1004008.D	B1004009.D	B1004010.D	
	Acq. Date-Time	10/04/2017 12:53 PM	10/04/2017 12:58 PM	10/04/2017 01:04 PM	10/04/2017 01:10 PM	10/04/2017 01:15 PM	10/04/2017 01:21 PM	10/04/2017 01:26 PM	10/04/2017 01:32 PM	10/04/2017 01:38 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	19699.9		20430.7	20880.1	21107.1	20470.8	21363.1	20994.8	21168.4	
55 Mn [2]	CPS	22.2		395.1	3842.2	7817.2	15552.9	31333.3	76844.5	152455.3	1.0000
52 Cr [2]	CPS	50		788.9	7428.3	14573.1	29312.4	58293.4	143568.4	285796.2	1.0000
72 Ge (ISTD) [1]	CPS	9464.1		9866.6	10106.7	9832.1	9668.7	9887.7	9587.5	9523	
78 Se [1]	CPS	1.1		17.8	187.8	391.1	705.6	1535.7	3713.9	7413	0.9999
72 Ge (ISTD) [2]	CPS	9966.7	10156.8	10193.5	10346.9	10559.3	10216.8	10637.1	10460.3	10416.9	
75 As [2]	CPS	5.8	20.9	69.3	625.8	1235.6	2502.9	5019.4	12456.3	24867.2	1.0000
103 Rh (ISTD) [2]	CPS	228820.6		238459.2	238999.6	238821.8	237805.9	240760.9	235903	231291.7	
95 Mo [2]	CPS	3.3		325.6	3028.2	6013.5	11841.3	24267.7	60350.1	121496	0.9999

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 171016A

Instrument ID: ICPMS-02

Analyte	Data File	A1016002.D	A1016004.D	A1016005.D	A1016006.D	A1016007.D	A1016008.D	A1016009.D	A1016010.D	
	Acq. Date-Time	10/16/2017 10:48 AM	10/16/2017 11:00 AM	10/16/2017 11:05 AM	10/16/2017 11:11 AM	10/16/2017 11:16 AM	10/16/2017 11:22 AM	10/16/2017 11:27 AM	10/16/2017 11:33 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	260452.5	262270.3	266122.1	264138.2	260121.8	262708.1	256668	258665.4	
55 Mn [2]	CPS	494	5886.1	50302.2	97520.8	193415.3	387138.8	917410.1	1885459.2	0.9999
52 Cr [2]	CPS	1266.6	10497.3	78150.6	151990.8	300381.5	597686	1446502.7	2900205.4	1.0000
72 Ge (ISTD) [1]	CPS	343196.6	344873.7	344837.4	342317.6	340705.2	337863.4	327621.2	330402.1	
78 Se [1]	CPS	10	413.4	4361.9	8561.5	16899.6	34097.2	82024.8	163840.7	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **ICV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.414	0.10	10.00	0	104	90	110				
Manganese	101.820	0.50	100.0	0	102	90	110				
Molybdenum	10.710	0.50	10.00	0	107	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **ZZZZZZ** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.120	0.10	0.1000	0	120	80	120				
Molybdenum	0.580	0.50	0.5000	0	116	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **ZZZZZZ** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.490	0.50	0.5000	0	98.1	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.111	0.10	20.00	0	101	90	110				
Manganese	20.591	0.50	20.00	0	103	90	110				
Molybdenum	19.377	0.50	20.00	0	96.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.010	0.10	20.00	0	100	90	110				
Manganese	20.744	0.50	20.00	0	104	90	110				
Molybdenum	19.448	0.50	20.00	0	97.2	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.591	0.10	20.00	0	98.0	90	110				
Manganese	20.693	0.50	20.00	0	103	90	110				
Molybdenum	19.268	0.50	20.00	0	96.3	90	110				

Sample ID **LLCCV1** SampType: **CCV2** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **ZZZZZZ** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.108	0.10	0.1000	0	108	70	130				
Manganese	0.601	0.50	0.5000	0	120	70	130				
Molybdenum	0.611	0.50	0.5000	0	122	70	130				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.100	0.10	20.00	0	100	90	110				
Manganese	20.762	0.50	20.00	0	104	90	110				
Molybdenum	19.332	0.50	20.00	0	96.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.047	0.10	20.00	0	105	90	110				
Manganese	20.713	0.50	20.00	0	104	90	110				
Molybdenum	19.399	0.50	20.00	0	97.0	90	110				

Sample ID **CCV6** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.937	0.10	20.00	0	99.7	90	110				
Manganese	20.878	0.50	20.00	0	104	90	110				
Molybdenum	19.420	0.50	20.00	0	97.1	90	110				

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **CCV** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.336	0.10	20.00	0	102	90	110				
Manganese	20.729	0.50	20.00	0	104	90	110				
Molybdenum	19.172	0.50	20.00	0	95.9	90	110				

Sample ID **LLCCV2** SampType: **CCV2** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **118554**
Client ID: **ZZZZZZ** Batch ID: **R118554** TestNo: **EPA 6020** Analysis Date: **10/4/2017** SeqNo: **2792974**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.098	0.10	0.1000	0	97.8	70	130				
Manganese	0.580	0.50	0.5000	0	116	70	130				
Molybdenum	0.479	0.50	0.5000	0	95.8	70	130				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.450	0.50	100.0	0	100	90	110				
Selenium	10.253	0.50	10.00	0	103	90	110				

not reported

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ZZZZZZ**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.516	0.50	0.5000	0	103	80	120				
Selenium	0.470	0.50	0.5000	0	94.1	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ZZZZZZ**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.511	0.50	0.5000	0	102	80	120				
Selenium	0.441	0.50	0.5000	0	88.1	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.293	0.50	20.00	0	101	90	110				
Selenium	20.067	0.50	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.294	0.50	20.00	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

10/18/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.930	0.50	20.00	0	99.7	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.265	0.50	20.00	0	101	90	110				
Selenium	20.453	0.50	20.00	0	102	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ZZZZZZ**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.553	0.50	0.5000	0	111	70	130				
Selenium	0.463	0.50	0.5000	0	92.6	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.330	1.0	10.00	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.981	1.0	1.000	0	98.1	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.545	1.0	20.00	0	103	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.840	1.0	20.00	0	104	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.240	1.0	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.095	1.0	1.000	0	109	70	130				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.185	1.0	20.00	0	101	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.198	1.0	20.00	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.591	1.0	20.00	0	103	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCV**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.687	1.0	20.00	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **LLCCV2**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ZZZZZZ**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.999	1.0	1.000	0	99.9	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.167	1.0	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ZZZZZZ**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.026	1.0	1.000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.136	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.975	1.0	20.00	0	99.9	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCV**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.203	1.0	20.00	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ZZZZZZ**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.016	1.0	1.000	0	102	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **ICB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.10									
Manganese	0.121	0.50									
Molybdenum	0.140	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.033	0.10									
Manganese	0.079	0.50									
Molybdenum	0.090	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.070	0.10									
Manganese	ND	0.50									
Molybdenum	0.065	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.083	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.042	0.10									
Manganese	0.102	0.50									
Molybdenum	0.121	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.045	0.10									
Manganese	ND	0.50									
Molybdenum	0.074	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	0.443	0.50									
Molybdenum	0.051	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **CCB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	0.111	0.50									
Molybdenum	0.089	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**6020DIS_CrP**	**µg/L**		**118315**
Client ID: **ICB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB1	**CCB**	**6020DIS_CrP**	**µg/L**		**118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781558**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB2	**CCB**	**6020DIS_CrP**	**µg/L**		**118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB3	**CCB**	**6020DIS_CrP**	**µg/L**		**118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB4	**CCB**	**6020DIS_CrP**	**µg/L**		**118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **CCB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.060	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **CCB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118554
Client ID:	ICSA	Batch ID:	R118554	TestNo:	EPA 6020			Analysis Date:	10/4/2017	SeqNo:	2792884

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.191	0.50									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118554
Client ID:	ICSAB	Batch ID:	R118554	TestNo:	EPA 6020			Analysis Date:	10/4/2017	SeqNo:	2792885

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	17.556	0.10	20.00	0	87.8	80	120				
Manganese	18.539	0.50	20.00	0	92.7	80	120				
Molybdenum	19.290	0.50	20.00	0	96.4	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118554
Client ID:	ICSA	Batch ID:	R118554	TestNo:	EPA 6020			Analysis Date:	10/4/2017	SeqNo:	2792924

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.142	0.50									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118554
Client ID:	ICSAB	Batch ID:	R118554	TestNo:	EPA 6020			Analysis Date:	10/4/2017	SeqNo:	2792925

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.105	0.10	20.00	0	101	80	120				
Manganese	17.795	0.50	20.00	0	89.0	80	120				
Molybdenum	21.072	0.50	20.00	0	105	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **ICSA**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792975**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.123	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118554**
Client ID: **ICSAB**	Batch ID: **R118554**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2792976**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.228	0.10	20.00	0	101	80	120				
Manganese	16.958	0.50	20.00	0	84.8	80	120				
Molybdenum	20.826	0.50	20.00	0	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSA**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	0.094	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSAB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	16.832	0.50	20.00	0	84.2	80	120				
Selenium	19.039	0.50	20.00	0	95.2	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSA**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	0.069	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSAB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	16.270	0.50	20.00	0	81.3	80	120				
Selenium	19.454	0.50	20.00	0	97.3	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICSA**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICSAB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	17.966	1.0	20.00	0	89.8	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICSA**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICSAB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.756	1.0	20.00	0	98.8	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICSA**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118315**
Client ID: **ICSAB**	Batch ID: **R118315**	TestNo: **EPA 6020**		Analysis Date: **10/4/2017**	SeqNo: **2781636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.245	1.0	20.00	0	96.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSA**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.042	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSAB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.459	1.0	20.00	0	97.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSA**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.039	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **118576**
Client ID: **ICSAB**	Batch ID: **R118576**	TestNo: **EPA 6020**		Analysis Date: **10/16/2017**	SeqNo: **2794277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.390	1.0	20.00	0	96.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	19699.9	19699.9	100	PASS	70-125	9966.7	9966.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	20963.6	19699.9	106.41	PASS	70-125	10156.8	9966.7	101.91	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	20430.7	19699.9	103.71	PASS	70-125	10193.5	9966.7	102.28	PASS	70-125
Std3-5/50 ppb	ICAL	1	20880.1	19699.9	105.99	PASS	70-125	10346.9	9966.7	103.81	PASS	70-125
Std4-10/100 ppb	ICAL	1	21107.1	19699.9	107.14	PASS	70-125	10559.3	9966.7	105.95	PASS	70-125
Std5-20/200 ppb	ICAL	1	20470.8	19699.9	103.91	PASS	70-125	10216.8	9966.7	102.51	PASS	70-125
Std6-40/400 ppb	ICAL	1	21363.1	19699.9	108.44	PASS	70-125	10637.1	9966.7	106.73	PASS	70-125
Std7-100/1000 ppb	ICAL	1	20994.8	19699.9	106.57	PASS	70-125	10460.3	9966.7	104.95	PASS	70-125
Std8-200/2000 ppb	ICAL	1	21168.4	19699.9	107.45	PASS	70-125	10416.9	9966.7	104.52	PASS	70-125
ICV	ICV	1	20950.3	19699.9	106.35	PASS	70-125	10338	9966.7	103.73	PASS	70-125
ICB	ICB	1	20510.9	19699.9	104.12	PASS	70-125	10275.8	9966.7	103.1	PASS	70-125
LLICV	CCV1	1	21037.1	19699.9	106.79	PASS	70-125	10634.9	9966.7	106.7	PASS	70-125
ICSA1	ICSA	1	21577.8	19699.9	109.53	PASS	70-125	10341.3	9966.7	103.76	PASS	70-125
ICSAB1	ICSAB	1	23485.9	19699.9	119.22	PASS	70-125	11516.6	9966.7	115.55	PASS	70-125
LLICV	CCV1	1	20187.1	19699.9	102.47	PASS	70-125	10123.5	9966.7	101.57	PASS	70-125
CCV1	CCV	1	21518.8	19699.9	109.23	PASS	70-125	10687.1	9966.7	107.23	PASS	70-125
CCB1	CCB	1	18885.6	19699.9	95.87	PASS	70-125	9628.6	9966.7	96.61	PASS	70-125
CCV2	CCV	1	21701.3	19699.9	110.16	PASS	70-125	11118.5	9966.7	111.56	PASS	70-125
CCB2	CCB	1	20396.3	19699.9	103.54	PASS	70-125	10401.4	9966.7	104.36	PASS	70-125
MB-64024	MBLK	1	19804.5	19699.9	100.53	PASS	70-125	10292.4	9966.7	103.27	PASS	70-125
LCS-64024	LCS	1	17349.5	19699.9	88.069	PASS	70-125	8926	9966.7	89.56	PASS	70-125
N026224-001B	SAMP	1	16693.2	19699.9	84.74	PASS	70-125	8349	9966.7	83.77	PASS	70-125
N026224-001B	SAMP	5	17707.6	19699.9	89.89	PASS	70-125	9209.5	9966.7	92.4	PASS	70-125
N026224-001B-PS	PS	1	18814.5	19699.9	95.51	PASS	70-125	9381.8	9966.7	94.13	PASS	70-125
CCV3	CCV	1	19488.6	19699.9	98.93	PASS	70-125	10067.8	9966.7	101.01	PASS	70-125
CCB3	CCB	1	17777.7	19699.9	90.24	PASS	70-125	9167.3	9966.7	91.98	PASS	70-125
LLCCV1	CCV2	1	18330.5	19699.9	93.049	PASS	70-125	9061.7	9966.7	90.92	PASS	70-125
ICSA2	ICSA	1	17203.8	19699.9	87.33	PASS	70-125	8513.6	9966.7	85.42	PASS	70-125
ICSAB2	ICSAB	1	18373.9	19699.9	93.27	PASS	70-125	9230.6	9966.7	92.61	PASS	70-125
N026224-001B-MS	MS	1	19260.4	19699.9	97.77	PASS	70-125	9546.4	9966.7	95.78	PASS	70-125
N026224-001B-MSD	MSD	1	19985.8	19699.9	101.45	PASS	70-125	9845.5	9966.7	98.78	PASS	70-125
N026224-002B	SAMP	1	20309.6	19699.9	103.1	PASS	70-125	10122.3	9966.7	101.56	PASS	70-125
N026224-003B	SAMP	1	20378.5	19699.9	103.44	PASS	70-125	10231.3	9966.7	102.65	PASS	70-125
N026224-004B	SAMP	1	20082.5	19699.9	101.94	PASS	70-125	10189	9966.7	102.23	PASS	70-125
N026224-005B	SAMP	1	20381.8	19699.9	103.46	PASS	70-125	10472.5	9966.7	105.08	PASS	70-125
N026224-006B	SAMP	1	20468.5	19699.9	103.9	PASS	70-125	10392.5	9966.7	104.27	PASS	70-125
N026224-007B	SAMP	1	20692.2	19699.9	105.04	PASS	70-125	10479.2	9966.7	105.14	PASS	70-125
N026224-010B	SAMP	1	22274.1	19699.9	113.07	PASS	70-125	11738.9	9966.7	117.78	PASS	70-125
N026226-001B	SAMP	1	20179.3	19699.9	102.43	PASS	70-125	9756.6	9966.7	97.89	PASS	70-125
CCV4	CCV	1	21765.8	19699.9	110.49	PASS	70-125	11048.5	9966.7	110.85	PASS	70-125
CCB4	CCB	1	20187.1	19699.9	102.47	PASS	70-125	10265.7	9966.7	103	PASS	70-125

INTERNAL STANDARD: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026226-002B	SAMP	1	19989.1	19699.9	101.47	PASS	70-125	9359.6	9966.7	93.91	PASS	70-125
N026226-003B	SAMP	1	20206.1	19699.9	102.57	PASS	70-125	9308.4	9966.7	93.4	PASS	70-125
N026254-001B	SAMP	1	21129.4	19699.9	107.26	PASS	70-125	10414.7	9966.7	104.49	PASS	70-125
N026254-002B	SAMP	1	21032.6	19699.9	106.77	PASS	70-125	10573.7	9966.7	106.09	PASS	70-125
N026254-003B	SAMP	1	21714.6	19699.9	110.23	PASS	70-125	10917.3	9966.7	109.54	PASS	70-125
N026254-004B	SAMP	1	22240.9	19699.9	112.9	PASS	70-125	11024	9966.7	110.61	PASS	70-125
N026254-005B	SAMP	1	21704.6	19699.9	110.18	PASS	70-125	10654.9	9966.7	106.9	PASS	70-125
N026254-006B	SAMP	1	21271.8	19699.9	107.98	PASS	70-125	10579.3	9966.7	106.15	PASS	70-125
N026254-007B	SAMP	1	21487.7	19699.9	109.08	PASS	70-125	10388	9966.7	104.23	PASS	70-125
N026254-008B	SAMP	1	21028.2	19699.9	106.74	PASS	70-125	10152.4	9966.7	101.86	PASS	70-125
CCV5	CCV	1	21716.9	19699.9	110.24	PASS	70-125	10934	9966.7	109.71	PASS	70-125
CCB5	CCB	1	20957.1	19699.9	106.38	PASS	70-125	10672.7	9966.7	107.08	PASS	70-125
N026254-009B	SAMP	1	20201.6	19699.9	102.55	PASS	70-125	10311.3	9966.7	103.46	PASS	70-125
CCV6	CCV	1	19256	19699.9	97.75	PASS	70-125	10133.4	9966.7	101.67	PASS	70-125
CCB6	CCB	1	18113.6	19699.9	91.95	PASS	70-125	9713.2	9966.7	97.46	PASS	70-125
CCV7	CCV	1	16434	19699.9	83.42	PASS	70-125	8601.4	9966.7	86.3	PASS	70-125
CCB7	CCB	1	15797.9	19699.9	80.19	PASS	70-125	8104.4	9966.7	81.31	PASS	70-125
LLCCV2	CCV2	1	16381.8	19699.9	83.16	PASS	70-125	8640.3	9966.7	86.69	PASS	70-125
ICSA3	ICSA	1	16459.7	19699.9	83.55	PASS	70-125	8244.6	9966.7	82.72	PASS	70-125
ICSAB3	ICSAB	1	19117	19699.9	97.041	PASS	70-125	9406.3	9966.7	94.38	PASS	70-125
CCV8	CCV	1	16970.2	19699.9	86.14	PASS	70-125	8797.1	9966.7	88.26	PASS	70-125
CCB8	CCB	1	16549.8	19699.9	84.01	PASS	70-125	8463.6	9966.7	84.92	PASS	70-125
CCV9	CCV	1	16773.3	19699.9	85.14	PASS	70-125	8554.7	9966.7	85.83	PASS	70-125
CCB9	CCB	1	16164.9	19699.9	82.056	PASS	70-125	8402.4	9966.7	84.3	PASS	70-125
CCV10	CCV	1	16790	19699.9	85.23	PASS	70-125	8644.8	9966.7	86.74	PASS	70-125
CCB10	CCB	1	16372.9	19699.9	83.11	PASS	70-125	8674.8	9966.7	87.038	PASS	70-125
LLCCV3	CCV2	1	16785.5	19699.9	85.21	PASS	70-125	8772.6	9966.7	88.019	PASS	70-125
ICSA4	ICSA	1	16527.5	19699.9	83.9	PASS	70-125	8310.1	9966.7	83.38	PASS	70-125
ICSAB4	ICSAB	1	18565.2	19699.9	94.24	PASS	70-125	9225.1	9966.7	92.56	PASS	70-125

INTERNAL STANDARD: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	9464.1	9464.1	100	PASS	70-125	228820.6	228820.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	9784.3	9464.1	103.38	PASS	70-125	239404.4	228820.6	104.63	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	9866.6	9464.1	104.25	PASS	70-125	238459.2	228820.6	104.21	PASS	70-125
Std3-5/50 ppb	ICAL	1	10106.7	9464.1	106.79	PASS	70-125	238999.6	228820.6	104.45	PASS	70-125
Std4-10/100 ppb	ICAL	1	9832.1	9464.1	103.89	PASS	70-125	238821.8	228820.6	104.37	PASS	70-125
Std5-20/200 ppb	ICAL	1	9668.7	9464.1	102.16	PASS	70-125	237805.9	228820.6	103.93	PASS	70-125
Std6-40/400 ppb	ICAL	1	9887.7	9464.1	104.48	PASS	70-125	240760.9	228820.6	105.22	PASS	70-125
Std7-100/1000 ppb	ICAL	1	9587.5	9464.1	101.3	PASS	70-125	235903	228820.6	103.1	PASS	70-125
Std8-200/2000 ppb	ICAL	1	9523	9464.1	100.62	PASS	70-125	231291.7	228820.6	101.08	PASS	70-125
ICV	ICV	1	9813.2	9464.1	103.69	PASS	70-125	236542	228820.6	103.37	PASS	70-125
ICB	ICB	1	9473	9464.1	100.09	PASS	70-125	233762.4	228820.6	102.16	PASS	70-125
LLICV	CCV1	1	10010	9464.1	105.77	PASS	70-125	241716.6	228820.6	105.64	PASS	70-125
ICSA1	ICSA	1	9640.9	9464.1	101.87	PASS	70-125	220680.3	228820.6	96.44	PASS	70-125
ICSAB1	ICSAB	1	11042.9	9464.1	116.68	PASS	70-125	240779.4	228820.6	105.23	PASS	70-125
LLICV	CCV1	1	9326.3	9464.1	98.54	PASS	70-125	233164.3	228820.6	101.9	PASS	70-125
CCV1	CCV	1	10293.5	9464.1	108.76	PASS	70-125	243985.3	228820.6	106.63	PASS	70-125
CCB1	CCB	1	9068.3	9464.1	95.82	PASS	70-125	217402.2	228820.6	95.01	PASS	70-125
CCV2	CCV	1	10244.6	9464.1	108.25	PASS	70-125	249129.4	228820.6	108.88	PASS	70-125
CCB2	CCB	1	9717.6	9464.1	102.68	PASS	70-125	236257.7	228820.6	103.25	PASS	70-125
MB-64024	MBLK	1	9613.1	9464.1	101.57	PASS	70-125	233523.5	228820.6	102.06	PASS	70-125
LCS-64024	LCS	1	8114.5	9464.1	85.74	PASS	70-125	205167.8	228820.6	89.66	PASS	70-125
N026224-001B	SAMP	1	7687.6	9464.1	81.23	PASS	70-125	176056.9	228820.6	76.94	PASS	70-125
N026224-001B	SAMP	5	8790.4	9464.1	92.88	PASS	70-125	201819.4	228820.6	88.2	PASS	70-125
N026224-001B-PS	PS	1	8679.2	9464.1	91.71	PASS	70-125	197425.7	228820.6	86.28	PASS	70-125
CCV3	CCV	1	9352.9	9464.1	98.83	PASS	70-125	225835.8	228820.6	98.7	PASS	70-125
CCB3	CCB	1	8710.3	9464.1	92.035	PASS	70-125	210624.7	228820.6	92.048	PASS	70-125
LLCCV1	CCV2	1	8452.4	9464.1	89.31	PASS	70-125	210125.9	228820.6	91.83	PASS	70-125
ICSA2	ICSA	1	8161.2	9464.1	86.23	PASS	70-125	185035.5	228820.6	80.86	PASS	70-125
ICSAB2	ICSAB	1	9035	9464.1	95.47	PASS	70-125	196245.3	228820.6	85.76	PASS	70-125
N026224-001B-MS	MS	1	9575.3	9464.1	101.17	PASS	70-125	201703.5	228820.6	88.15	PASS	70-125
N026224-001B-MSD	MSD	1	9558.6	9464.1	101	PASS	70-125	207407.5	228820.6	90.64	PASS	70-125
N026224-002B	SAMP	1	9763.2	9464.1	103.16	PASS	70-125	210270.6	228820.6	91.89	PASS	70-125
N026224-003B	SAMP	1	9944.4	9464.1	105.08	PASS	70-125	214472.4	228820.6	93.73	PASS	70-125
N026224-004B	SAMP	1	10086.7	9464.1	106.58	PASS	70-125	211063.8	228820.6	92.24	PASS	70-125
N026224-005B	SAMP	1	10174.5	9464.1	107.51	PASS	70-125	211318.7	228820.6	92.35	PASS	70-125
N026224-006B	SAMP	1	10092.3	9464.1	106.64	PASS	70-125	217835.5	228820.6	95.2	PASS	70-125
N026224-007B	SAMP	1	10431.4	9464.1	110.22	PASS	70-125	218803.4	228820.6	95.62	PASS	70-125
N026224-010B	SAMP	1	11156.4	9464.1	117.88	PASS	70-125	223909.9	228820.6	97.85	PASS	70-125
N026226-001B	SAMP	1	9304	9464.1	98.31	PASS	70-125	193217.3	228820.6	84.44	PASS	70-125
CCV4	CCV	1	10822.8	9464.1	114.36	PASS	70-125	246728.7	228820.6	107.83	PASS	70-125
CCB4	CCB	1	10156.8	9464.1	107.32	PASS	70-125	231620	228820.6	101.22	PASS	70-125

INTERNAL STANDARD: 171004B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026226-002B	SAMP	1	8761.5	9464.1	92.58	PASS	70-125	190440.6	228820.6	83.23	PASS	70-125
N026226-003B	SAMP	1	8130	9464.1	85.9	PASS	70-125	184120.7	228820.6	80.47	PASS	70-125
N026254-001B	SAMP	1	9470.8	9464.1	100.07	PASS	70-125	221002.5	228820.6	96.58	PASS	70-125
N026254-002B	SAMP	1	9851	9464.1	104.09	PASS	70-125	224104	228820.6	97.94	PASS	70-125
N026254-003B	SAMP	1	10094.5	9464.1	106.66	PASS	70-125	226416	228820.6	98.95	PASS	70-125
N026254-004B	SAMP	1	10475.9	9464.1	110.69	PASS	70-125	235662.4	228820.6	102.99	PASS	70-125
N026254-005B	SAMP	1	10185.7	9464.1	107.62	PASS	70-125	228763.8	228820.6	99.98	PASS	70-125
N026254-006B	SAMP	1	10219.1	9464.1	107.98	PASS	70-125	220079.6	228820.6	96.18	PASS	70-125
N026254-007B	SAMP	1	9965.6	9464.1	105.3	PASS	70-125	219409.4	228820.6	95.89	PASS	70-125
N026254-008B	SAMP	1	9792.1	9464.1	103.47	PASS	70-125	213384.1	228820.6	93.25	PASS	70-125
CCV5	CCV	1	10500.4	9464.1	110.95	PASS	70-125	248157.7	228820.6	108.45	PASS	70-125
CCB5	CCB	1	10075.6	9464.1	106.46	PASS	70-125	240465.7	228820.6	105.09	PASS	70-125
N026254-009B	SAMP	1	9575.3	9464.1	101.17	PASS	70-125	215959.8	228820.6	94.38	PASS	70-125
CCV6	CCV	1	9231.7	9464.1	97.54	PASS	70-125	229822.2	228820.6	100.44	PASS	70-125
CCB6	CCB	1	8906	9464.1	94.1	PASS	70-125	219335.7	228820.6	95.85	PASS	70-125
CCV7	CCV	1	7818.8	9464.1	82.62	PASS	70-125	200460.2	228820.6	87.61	PASS	70-125
CCB7	CCB	1	7676.5	9464.1	81.11	PASS	70-125	193882	228820.6	84.73	PASS	70-125
LLCCV2	CCV2	1	7741	9464.1	81.79	PASS	70-125	200177.4	228820.6	87.48	PASS	70-125
ICSA3	ICSA	1	7279.6	9464.1	76.92	PASS	70-125	181387.2	228820.6	79.27	PASS	70-125
ICSAB3	ICSAB	1	8914.9	9464.1	94.2	PASS	70-125	203876.2	228820.6	89.099	PASS	70-125
CCV8	CCV	1	8188.9	9464.1	86.53	PASS	70-125	203533.9	228820.6	88.95	PASS	70-125
CCB8	CCB	1	7973.3	9464.1	84.25	PASS	70-125	201041.1	228820.6	87.86	PASS	70-125
CCV9	CCV	1	8004.4	9464.1	84.58	PASS	70-125	200767.7	228820.6	87.74	PASS	70-125
CCB9	CCB	1	7833.2	9464.1	82.77	PASS	70-125	197085.9	228820.6	86.13	PASS	70-125
CCV10	CCV	1	8143.4	9464.1	86.045	PASS	70-125	201160.6	228820.6	87.91	PASS	70-125
CCB10	CCB	1	7899.9	9464.1	83.47	PASS	70-125	198587.6	228820.6	86.79	PASS	70-125
LLCCV3	CCV2	1	8343.5	9464.1	88.16	PASS	70-125	205402.3	228820.6	89.77	PASS	70-125
ICSA4	ICSA	1	7488.6	9464.1	79.13	PASS	70-125	184293.2	228820.6	80.54	PASS	70-125
ICSAB4	ICSAB	1	8879.3	9464.1	93.82	PASS	70-125	199453.5	228820.6	87.17	PASS	70-125

INTERNAL STANDARD: 171016A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	260452.5	260452.5	100	PASS	70-125	343196.6	343196.6	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	262961.7	260452.5	100.96	PASS	70-125	345260.4	343196.6	100.6	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	262270.3	260452.5	100.7	PASS	70-125	344873.7	343196.6	100.49	PASS	70-125
Std3-5/50 ppb	ICAL	1	266122.1	260452.5	102.18	PASS	70-125	344837.4	343196.6	100.48	PASS	70-125
Std4-10/100 ppb	ICAL	1	264138.2	260452.5	101.42	PASS	70-125	342317.6	343196.6	99.74	PASS	70-125
Std5-20/200 ppb	ICAL	1	260121.8	260452.5	99.87	PASS	70-125	340705.2	343196.6	99.27	PASS	70-125
Std6-40/400 ppb	ICAL	1	262708.1	260452.5	100.87	PASS	70-125	337863.4	343196.6	98.45	PASS	70-125
Std7-100/1000 ppb	ICAL	1	256668	260452.5	98.55	PASS	70-125	327621.2	343196.6	95.46	PASS	70-125
Std8-200/2000 ppb	ICAL	1	258665.4	260452.5	99.31	PASS	70-125	330402.1	343196.6	96.27	PASS	70-125
ICV	ICV	1	257238.5	260452.5	98.77	PASS	70-125	332002.9	343196.6	96.74	PASS	70-125
ICB	ICB	1	234426.4	260452.5	90.007	PASS	70-125	316261.5	343196.6	92.15	PASS	70-125
LLICV	CCV1	1	268066.1	260452.5	102.92	PASS	70-125	349536.2	343196.6	101.85	PASS	70-125
ICSA1	ICSA	1	275829.5	260452.5	105.9	PASS	70-125	341538.8	343196.6	99.52	PASS	70-125
ICSAB1	ICSAB	1	305371.8	260452.5	117.25	PASS	70-125	383696.8	343196.6	111.8	PASS	70-125
LLICV	CCV1	1	287638.9	260452.5	110.44	PASS	70-125	385552.9	343196.6	112.34	PASS	70-125
MB-64024	MBLK	1	266905.4	260452.5	102.48	PASS	70-125	356790.8	343196.6	103.96	PASS	70-125
LCS-64024	LCS	1	263862.4	260452.5	101.31	PASS	70-125	346996.1	343196.6	101.11	PASS	70-125
N026224-001B	SAMP	1	233716.1	260452.5	89.73	PASS	70-125	296396.8	343196.6	86.36	PASS	70-125
N026224-001B	SAMP	5	228586.2	260452.5	87.77	PASS	70-125	306072.2	343196.6	89.18	PASS	70-125
N026224-001B-PS	PS	1	259374.6	260452.5	99.59	PASS	70-125	327560.1	343196.6	95.44	PASS	70-125
N026224-001B-MS	MS	1	257230.2	260452.5	98.76	PASS	70-125	326960.2	343196.6	95.27	PASS	70-125
N026224-001B-MSD	MSD	1	256082.9	260452.5	98.32	PASS	70-125	329810.3	343196.6	96.1	PASS	70-125
N026226-001B	SAMP	1	225935.5	260452.5	86.75	PASS	70-125	274831.5	343196.6	80.08	PASS	70-125
N026226-001B	SAMP	5	243483.3	260452.5	93.48	PASS	70-125	317910.2	343196.6	92.63	PASS	70-125
N026226-002B	SAMP	1	227171.2	260452.5	87.22	PASS	70-125	272590.6	343196.6	79.43	PASS	70-125
CCV1	CCV	1	270670.7	260452.5	103.92	PASS	70-125	369051.1	343196.6	107.53	PASS	70-125
CCB1	CCB	1	268844.4	260452.5	103.22	PASS	70-125	364360.1	343196.6	106.17	PASS	70-125
N026226-003B	SAMP	1	207220.1	260452.5	79.56	PASS	70-125	238513.3	343196.6	69.5	NR!	70-125
N026226-003B	SAMP	5	221734.1	260452.5	85.13	PASS	70-125	283404.9	343196.6	82.58	PASS	70-125
CCV2	CCV	1	252432.5	260452.5	96.92	PASS	70-125	341841.3	343196.6	99.61	PASS	70-125
CCB2	CCB	1	247399	260452.5	94.99	PASS	70-125	338903.2	343196.6	98.75	PASS	70-125
CCV3	CCV	1	246970.6	260452.5	94.82	PASS	70-125	335051.7	343196.6	97.63	PASS	70-125
CCB3	CCB	1	239511.1	260452.5	91.96	PASS	70-125	324422.2	343196.6	94.53	PASS	70-125
LLCCV1	CCV2	1	236071.4	260452.5	90.64	PASS	70-125	322076.7	343196.6	93.85	PASS	70-125
ICSA2	ICSA	1	226024.5	260452.5	86.78	PASS	70-125	293992.5	343196.6	85.66	PASS	70-125
ICSAB2	ICSAB	1	251742.3	260452.5	96.66	PASS	70-125	323370.8	343196.6	94.22	PASS	70-125
CCV4	CCV	1	205192.1	260452.5	78.78	PASS	70-125	274214.8	343196.6	79.9	PASS	70-125
CCB4	CCB	1	194934.5	260452.5	74.84	PASS	70-125	263675.2	343196.6	76.83	PASS	70-125
CCV5	CCV	1	201107.1	260452.5	77.21	PASS	70-125	271445.7	343196.6	79.093	PASS	70-125
CCB5	CCB	1	193299.3	260452.5	74.22	PASS	70-125	262108.2	343196.6	76.37	PASS	70-125
LLCCV2	CCV2	1	200037.5	260452.5	76.8	PASS	70-125	272628.8	343196.6	79.44	PASS	70-125

INTERNAL STANDARD: 171016A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA3	ICSA	1	204505.4	260452.5	78.52	PASS	70-125	262079.5	343196.6	76.36	PASS	70-125
ICSAB3	ICSAB	1	237297.3	260452.5	91.11	PASS	70-125	298235.4	343196.6	86.9	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026226
Test Method: EPA 6020
Analysis Date: 10/4/2017

Matrix: Groundwater
Batch No.: 64024

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, As, Mn and Mo. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026224-001B DT 5X	Arsenic	ug/L	1.745713	NA	1.685123	3.60%	10
N026224-001B DT 5X	Chromium	ug/L	0.797153	NA	0.606952	31.34%	10
N026224-001B DT 5X	Manganese	ug/L	12.95762	NA	12.26561	5.64%	10
N026224-001B DT 5X	Molybdenum	ug/L	1.636131	NA	1.888781	13.38%	10

Note: NA - Not applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026226
Test Method: EPA 6020
Analysis Date: 10/16/2017

Matrix: Groundwater
Batch No.: 64024

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to ~~Cr and~~ Se. The calculated concentration is <25RL.

not reported

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026224-001B DT 5X	Chromium	ug/L	0.663052	NA	0.675932	1.91%	10
N026224-001B DT 5X	Manganese	ug/L	14.4275	PASS	13.42896	7.44%	10
N026224-001B DT 5X	Selenium	ug/L	0.248141	NA	0.326128	23.91%	10

Note: NA - Not applicable

For Se only

Mary 10/18/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N026224-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118554
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/4/2017	SeqNo:	2792920

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.149	0.10	10.00	1.685	94.6	80	120				
Manganese	102.917	0.50	100.0	12.27	90.7	80	120				
Molybdenum	12.118	0.50	10.00	1.889	102	80	120				

Sample ID	N026224-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	118576
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794312

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
NR ~~Manganese~~	~~103.933~~	~~0.50~~	~~100.0~~	~~13.43~~	~~90.5~~	~~80~~	~~120~~				
Selenium	9.292	0.50	10.00	0.3261	89.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

10/18/2017

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026226
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N026224-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	118315
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/4/2017	SeqNo:	2781580

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.883	1.0	10.00	0.6070	92.8	80	120				

not reported

Sample ID	N026224-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	118576
Client ID:	ZZZZZZ	Batch ID:	64024	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	10/16/2017	SeqNo:	2794243

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.760	1.0	10.00	0.6759	90.8	80	120				

10/18/2017

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101

November 08, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026662

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 24, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026662

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary for sample N026662-001 due to precipitation upon the addition of eluent.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Chromium in QC sample N026662-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *08-Nov-17*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026662
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026662-001A	TW-02D-Q317	Groundwater	10/24/2017 8:50:00 AM	10/24/2017	11/8/2017
N026662-001B	TW-02D-Q317	Groundwater	10/24/2017 8:50:00 AM	10/24/2017	11/8/2017
N026662-001C	TW-02D-Q317	Groundwater	10/24/2017 8:50:00 AM	10/24/2017	11/8/2017
N026662-002A	MW-708-Q417	Groundwater	10/24/2017 4:00:00 PM	10/24/2017	11/8/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171025D**	QC Batch: **R118821**			PrepDate			Analyst: **LR**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	10/25/2017 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N026661-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118821**
Client ID: **ZZZZZZ**	Batch ID: **R118821**	TestNo: **EPA 120.1**		Analysis Date: **10/25/2017**	SeqNo: **2809455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7310.000	0.10						7330	0.273	10	

Sample ID **N026664-010ADUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118821**
Client ID: **ZZZZZZ**	Batch ID: **R118821**	TestNo: **EPA 120.1**		Analysis Date: **10/25/2017**	SeqNo: **2809474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	169400.000	0.10						168900	0.296	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_171026F**	QC Batch: **64408**				PrepDate	**10/26/2017**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2200	25	25		mg/L	1	10/26/2017 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-64408**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/26/2017**	RunNo: **118848**
Client ID: **LCSW**	Batch ID: **64408**	TestNo: **SM2540C**		Analysis Date: **10/26/2017**	SeqNo: **2811426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	965.000	10	1000	0	96.5	80	120				

Sample ID **MB-64408**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/26/2017**	RunNo: **118848**
Client ID: **PBW**	Batch ID: **64408**	TestNo: **SM2540C**		Analysis Date: **10/26/2017**	SeqNo: **2811427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N026664-012ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/26/2017**	RunNo: **118848**
Client ID: **ZZZZZZ**	Batch ID: **64408**	TestNo: **SM2540C**		Analysis Date: **10/26/2017**	SeqNo: **2811431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	352800.000	2000						340200	3.64	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171025A**	QC Batch: **R118829**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	200	0.66	4.0		µg/L	20	10/25/2017 06:25 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171107E**	QC Batch: **64448**			PrepDate	**10/29/2017**		Analyst: **CEI**
Chromium	190	0.096	5.0		µg/L	5	11/8/2017 01:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-708-Q417
Lab Order:	N026662	**Collection Date:**	10/24/2017 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171025A**	QC Batch: **R118829**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/25/2017 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R118829**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **PBW**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R118829**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **LCSW**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.965	0.20	5.000	0	99.3	90	110				

Sample ID **N026664-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.246	0.20						5.097	2.88	20	

Sample ID **N026662-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID **N026662-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	303.510	4.0	100.0	199.8	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026662-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	ZZZZZZ	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809686

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	303.240	4.0	100.0	199.8	103	90	110	303.5	0.0890	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-64448	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	PBW	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-64448	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	LCSW	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.914	1.0	10.00	0	99.1	85	115				

Sample ID	N026662-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	ZZZZZZ	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826155

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	196.940	5.0	10.00	188.6	83.4	75	125				

Sample ID	N026662-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	ZZZZZZ	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826159

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	195.481	5.0	10.00	188.6	68.8	75	125	196.9	0.744	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_171027B**	QC Batch: **R118856**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	83	1.2	5.0		mg/L	1	10/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R118856**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **118856**
Client ID: **LCSW**	Batch ID: **R118856**	TestNo: **SM 2320 B**		Analysis Date: **10/27/2017**	SeqNo: **2811407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.534	5.0	100.0	0	97.5	85	115				

Sample ID **MB-R118856**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **118856**
Client ID: **PBW**	Batch ID: **R118856**	TestNo: **SM 2320 B**		Analysis Date: **10/27/2017**	SeqNo: **2811408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N026661-001DDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **118856**
Client ID: **ZZZZZZ**	Batch ID: **R118856**	TestNo: **SM 2320 B**		Analysis Date: **10/27/2017**	SeqNo: **2811413**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	62.780	5.0						65.02	3.51	30	

Sample ID **N026662-001CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **118856**
Client ID: **ZZZZZZ**	Batch ID: **R118856**	TestNo: **SM 2320 B**		Analysis Date: **10/27/2017**	SeqNo: **2811421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	179.372	5.0	100.0	82.96	96.4	75	125				

Sample ID **N026662-001CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **118856**
Client ID: **ZZZZZZ**	Batch ID: **R118856**	TestNo: **SM 2320 B**		Analysis Date: **10/27/2017**	SeqNo: **2811422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	179.372	5.0	100.0	82.96	96.4	75	125	179.4	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026662
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026662-001

Client Sample ID: TW-02D-Q317
Collection Date: 10/24/2017 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_171025A** QC Batch: **R118813**				PrepDate			Analyst: **RAB**
Bromide	ND	0.098	0.50		mg/L	5	10/25/2017 10:45 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_171025A** QC Batch: **R118813**				PrepDate			Analyst: **RAB**
Chloride	1000	4.6	250		mg/L	500	10/25/2017 06:13 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_171025A** QC Batch: **R118813**				PrepDate			Analyst: **RAB**
Sulfate	230	1.1	25		mg/L	50	10/25/2017 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	MB-R118813_BR	SampType:	MBLK	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	PBW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808778

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID	LCS-R118813_BR	SampType:	LCS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	LCSW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808779

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.208	0.10	1.250	0	96.7	90	110				

Sample ID	N026662-001CDUP	SampType:	DUP	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808789

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50						0	0	20	

Sample ID	N026662-001CMS	SampType:	MS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808790

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	7.395	0.50	6.250	0	118	80	120				

Sample ID	N026662-001CMSD	SampType:	MSD	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808791

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	7.499	0.50	6.250	0	120	80	120	7.395	1.40	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R118813_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	PBW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809890

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID	LCS-R118813_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	LCSW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809891

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.981	0.50	2.000	0	99.0	90	110				

Sample ID	N026661-001DMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3225.800	250	1000	2156	107	80	120				

Sample ID	N026661-001DMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3212.700	250	1000	2156	106	80	120	3226	0.407	20	

Sample ID	N026661-005DDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809900

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2433.200	250						2423	0.410	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R118813_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	PBW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808798

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R118813_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	LCSW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808799

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.821	0.50	4.000	0	95.5	90	110				

Sample ID	N026661-001DMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808809

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	671.975	25	200.0	472.6	99.7	80	120				

Sample ID	N026661-001DMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808810

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	671.600	25	200.0	472.6	99.5	80	120	672.0	0.0558	20	

Sample ID	N026661-004DDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808812

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	479.185	25						481.6	0.507	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_171107F**	QC Batch: **64448**			PrepDate	**10/29/2017**		Analyst: **CEI**
Manganese	2.4	0.056	0.50		µg/L	1	11/8/2017 01:30 AM
Molybdenum	11	0.039	0.50		µg/L	1	11/8/2017 01:30 AM
Selenium	2.2	0.028	0.50		µg/L	1	11/8/2017 01:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-64448**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **PBW**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	0.029	0.50									

Sample ID **LCS-64448**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **LCSW**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	99.453	0.50	100.0	0	99.5	85	115				
Molybdenum	10.003	0.50	10.00	0	100	85	115				
Selenium	9.503	0.50	10.00	0	95.0	85	115				

Sample ID **N026662-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **ZZZZZZ**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	92.212	0.50	100.0	2.426	89.8	75	125				
Molybdenum	21.172	0.50	10.00	10.50	107	75	125				
Selenium	10.853	0.50	10.00	2.190	86.6	75	125				

Sample ID **N026662-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **ZZZZZZ**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	91.235	0.50	100.0	2.426	88.8	75	125	92.21	1.06	20	
Molybdenum	21.421	0.50	10.00	10.50	109	75	125	21.17	1.17	20	
Selenium	11.527	0.50	10.00	2.190	93.4	75	125	10.85	6.02	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Global ID: Specify State:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	
Submitted By: Jacob Matthews		Phone: 949-727-1400, ext 200 Fax:	
Title: Sample Tech	Phone: 916-786-3302 Fax:		
Signature: Date: 10/24/17	Sampled By:		

Sample Receipt Condition

	Y	N
1. Chilled	/	
2. Headspace		
3. Container Intact	/	
4. Seal Present		/
5. IR number	/	
6. Method of Cooling: Ice		

Sample Temp: 2.4°C / 2.2°C / 2.8°C

Courier:

Tracking No.:

I hereby authorize ASSET Labs to perform the tests indicated below.

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for

Signature: Date: 10/24/17

Project Name: PG&E Topock - GMP

Project Number: RC000753.0801

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved metals (SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026662 - 01	TW-02D-Q317	10/24/17	0850		X			X		X		X	X	X	X			E	3	P	BN	
~~2~~		~~MW-903-Q317~~				~~X~~			~~X~~		~~X~~		~~X~~	~~X~~	~~X~~	~~X~~			~~E~~	~~3~~	~~P~~	~~BN~~	
3	- 02	MW-708-Q417		1600		X													E	1	P	BN	
4																							
5																							
6																							
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Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name):	Date/Time:
Jordan Ferrone	10/24/17 1610		10/24/17 @1634
Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name):	Date/Time:
	10/24/17 @1912	Lourdes Rodriguez	10/24/17 19:12
Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/24/2017	Workorder:	N026662
Rep sample Temp (Deg C):	2.4/2.2/2.8	IR Gun ID:	1

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 11/3/2017

Reviewed By: 11/06/2017

ASSET Laboratories

WORK ORDER Summary

25-Oct-17

WorkOrder: N026662

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 10/24/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026662-001A	TW-02D-Q317	10/24/2017 8:50:00 AM	11/7/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026662-001B			11/7/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			11/7/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			11/7/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026662-001C			11/7/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			11/7/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			11/7/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			11/7/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			11/7/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			11/7/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			11/7/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N026662-002A	MW-708-Q417	10/24/2017 4:00:00 PM	11/7/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026662-003A	FOLDER	11/7/2017	11/7/2017		EDD	RWQCB	☐	☐	☐	LAB
			11/7/2017		Folder	Folder	☐	☐	☐	LAB
			11/7/2017		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N026662

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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November 08, 2017

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N026662

RE: PG&E Topock - GMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on October 24, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026662

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary for sample N026662-001 due to precipitation upon the addition of eluent.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Chromium in QC sample N026662-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.0801
Lab Order: N026662
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N026662-001A	TW-02D-Q317	Groundwater	10/24/2017 8:50:00 AM	10/24/2017	11/8/2017
N026662-001B	TW-02D-Q317	Groundwater	10/24/2017 8:50:00 AM	10/24/2017	11/8/2017
N026662-001C	TW-02D-Q317	Groundwater	10/24/2017 8:50:00 AM	10/24/2017	11/8/2017
N026662-002A	MW-708-Q417	Groundwater	10/24/2017 4:00:00 PM	10/24/2017	11/8/2017

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_171025D**	QC Batch: **R118821**			PrepDate			Analyst: **LR**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	10/25/2017 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N026661-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118821**
Client ID: **ZZZZZZ**	Batch ID: **R118821**	TestNo: **EPA 120.1**		Analysis Date: **10/25/2017**	SeqNo: **2809455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7310.000	0.10						7330	0.273	10	

Sample ID **N026664-010ADUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **118821**
Client ID: **ZZZZZZ**	Batch ID: **R118821**	TestNo: **EPA 120.1**		Analysis Date: **10/25/2017**	SeqNo: **2809474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	169400.000	0.10						168900	0.296	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_171026F**	QC Batch: **64408**			PrepDate	**10/26/2017**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2200	25	25		mg/L	1	10/26/2017 01:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-64408**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/26/2017**	RunNo: **118848**
Client ID: **LCSW**	Batch ID: **64408**	TestNo: **SM2540C**		Analysis Date: **10/26/2017**	SeqNo: **2811426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	965.000	10	1000	0	96.5	80	120				

Sample ID **MB-64408**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/26/2017**	RunNo: **118848**
Client ID: **PBW**	Batch ID: **64408**	TestNo: **SM2540C**		Analysis Date: **10/26/2017**	SeqNo: **2811427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N026664-012ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **10/26/2017**	RunNo: **118848**
Client ID: **ZZZZZZ**	Batch ID: **64408**	TestNo: **SM2540C**		Analysis Date: **10/26/2017**	SeqNo: **2811431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	352800.000	2000						340200	3.64	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026662
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026662-001

Client Sample ID: TW-02D-Q317
Collection Date: 10/24/2017 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171025A**	QC Batch: **R118829**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	200	0.66	4.0		µg/L	20	10/25/2017 06:25 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_171107E**	QC Batch: **64448**			PrepDate	**10/29/2017**		Analyst: **CEI**
Chromium	190	0.096	5.0		µg/L	5	11/8/2017 01:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-708-Q417
Lab Order:	N026662	**Collection Date:**	10/24/2017 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_171025A**	QC Batch: **R118829**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	10/25/2017 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R118829	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	PBW	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809631

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R118829	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	LCSW	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809632

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.965	0.20	5.000	0	99.3	90	110				

Sample ID	N026664-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	ZZZZZZ	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809642

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.246	0.20						5.097	2.88	20	

Sample ID	N026662-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	ZZZZZZ	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809680

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID	N026662-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	ZZZZZZ	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809685

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	303.510	4.0	100.0	199.8	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N026662-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	118829
Client ID:	ZZZZZZ	Batch ID:	R118829	TestNo:	EPA 218.6			Analysis Date:	10/25/2017	SeqNo:	2809686

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	303.240	4.0	100.0	199.8	103	90	110	303.5	0.0890	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-64448	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	PBW	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-64448	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	LCSW	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826148

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.914	1.0	10.00	0	99.1	85	115				

Sample ID	N026662-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	ZZZZZZ	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826155

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	196.940	5.0	10.00	188.6	83.4	75	125				

Sample ID	N026662-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	10/29/2017	RunNo:	119099
Client ID:	ZZZZZZ	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826159

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	195.481	5.0	10.00	188.6	68.8	75	125	196.9	0.744	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_171027B**	QC Batch: **R118856**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	83	1.2	5.0		mg/L	1	10/27/2017 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID	LCS-R118856	SampType:	LCS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	118856
Client ID:	LCSW	Batch ID:	R118856	TestNo:	SM 2320 B			Analysis Date:	10/27/2017	SeqNo:	2811407

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.534	5.0	100.0	0	97.5	85	115				

Sample ID	MB-R118856	SampType:	MBLK	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	118856
Client ID:	PBW	Batch ID:	R118856	TestNo:	SM 2320 B			Analysis Date:	10/27/2017	SeqNo:	2811408

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID	N026661-001DDUP	SampType:	DUP	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	118856
Client ID:	ZZZZZZ	Batch ID:	R118856	TestNo:	SM 2320 B			Analysis Date:	10/27/2017	SeqNo:	2811413

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	62.780	5.0						65.02	3.51	30	

Sample ID	N026662-001CMS	SampType:	MS	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	118856
Client ID:	ZZZZZZ	Batch ID:	R118856	TestNo:	SM 2320 B			Analysis Date:	10/27/2017	SeqNo:	2811421

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	179.372	5.0	100.0	82.96	96.4	75	125				

Sample ID	N026662-001CMSD	SampType:	MSD	TestCode:	2320_W_SP	Units:	mg/L	Prep Date:		RunNo:	118856
Client ID:	ZZZZZZ	Batch ID:	R118856	TestNo:	SM 2320 B			Analysis Date:	10/27/2017	SeqNo:	2811422

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	179.372	5.0	100.0	82.96	96.4	75	125	179.4	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N026662
Project: PG&E Topock - GMP, RC000753.0801
Lab ID: N026662-001

Client Sample ID: TW-02D-Q317
Collection Date: 10/24/2017 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_171025A** QC Batch: **R118813**				PrepDate			Analyst: **RAB**
Bromide	ND	0.098	0.50		mg/L	5	10/25/2017 10:45 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_171025A** QC Batch: **R118813**				PrepDate			Analyst: **RAB**
Chloride	1000	4.6	250		mg/L	500	10/25/2017 06:13 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_171025A** QC Batch: **R118813**				PrepDate			Analyst: **RAB**
Sulfate	230	1.1	25		mg/L	50	10/25/2017 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	MB-R118813_BR	SampType:	MBLK	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	PBW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808778

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID	LCS-R118813_BR	SampType:	LCS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	LCSW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808779

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.208	0.10	1.250	0	96.7	90	110				

Sample ID	N026662-001CDUP	SampType:	DUP	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808789

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50						0	0	20	

Sample ID	N026662-001CMS	SampType:	MS	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808790

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	7.395	0.50	6.250	0	118	80	120				

Sample ID	N026662-001CMSD	SampType:	MSD	TestCode:	300_W_BRP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808791

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	7.499	0.50	6.250	0	120	80	120	7.395	1.40	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R118813_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	PBW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809890

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID	LCS-R118813_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	LCSW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809891

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.981	0.50	2.000	0	99.0	90	110				

Sample ID	N026661-001DMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3225.800	250	1000	2156	107	80	120				

Sample ID	N026661-001DMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3212.700	250	1000	2156	106	80	120	3226	0.407	20	

Sample ID	N026661-005DDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2809900

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2433.200	250						2423	0.410	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R118813_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	PBW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808798

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R118813_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	LCSW	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808799

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.821	0.50	4.000	0	95.5	90	110				

Sample ID	N026661-001DMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808809

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	671.975	25	200.0	472.6	99.7	80	120				

Sample ID	N026661-001DMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808810

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	671.600	25	200.0	472.6	99.5	80	120	672.0	0.0558	20	

Sample ID	N026661-004DDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	118813
Client ID:	ZZZZZZ	Batch ID:	R118813	TestNo:	EPA 300.0			Analysis Date:	10/25/2017	SeqNo:	2808812

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	479.185	25						481.6	0.507	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q317
Lab Order:	N026662	**Collection Date:**	10/24/2017 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N026662-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_171107F**	QC Batch: **64448**				PrepDate	**10/29/2017**	Analyst: **CEI**
Manganese	2.4	0.056	0.50		µg/L	1	11/8/2017 01:30 AM
Molybdenum	11	0.039	0.50		µg/L	1	11/8/2017 01:30 AM
Selenium	2.2	0.028	0.50		µg/L	1	11/8/2017 01:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-64448**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **PBW**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	0.029	0.50									

Sample ID **LCS-64448**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **LCSW**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	99.453	0.50	100.0	0	99.5	85	115				
Molybdenum	10.003	0.50	10.00	0	100	85	115				
Selenium	9.503	0.50	10.00	0	95.0	85	115				

Sample ID **N026662-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **ZZZZZZ**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	92.212	0.50	100.0	2.426	89.8	75	125				
Molybdenum	21.172	0.50	10.00	10.50	107	75	125				
Selenium	10.853	0.50	10.00	2.190	86.6	75	125				

Sample ID **N026662-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/29/2017**	RunNo: **119100**
Client ID: **ZZZZZZ**	Batch ID: **64448**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/8/2017**	SeqNo: **2826213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	91.235	0.50	100.0	2.426	88.8	75	125	92.21	1.06	20	
Molybdenum	21.421	0.50	10.00	10.50	109	75	125	21.17	1.17	20	
Selenium	11.527	0.50	10.00	2.190	93.4	75	125	10.85	6.02	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Labspec	CalTrans	2. Headspace
Submitted By: Jacob Matthews			Others ✓	LEVEL III	3. Container Intact /
Title: Sample Tech	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present /
Signature: Date: 10/24/17	Sampled By:		Global ID:	Regulatory	5. IR number /
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State:	6. Method of Cooling: Ice
Project Name: PG&E Topock - GMP	Signature:	Date: 10/24/17			Sample Temp: 2.4°C / 2.2°C / 2.8°C
Project Number: RC000753.0801					Courier: Tracking No.:

Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Metals Dissolved (6020AFF) Manganese; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 500 mL poly	Dissolved metals (SW6020A) FF (Mo, Se, Mn); HNO3 500 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N026662 - 01	TW-02D-Q317	10/24/17	0850		X			X		X		X	X	X	X			E	3	P	BN	
~~2~~	~~MW 003 Q317~~					~~X~~			~~X~~		~~X~~		~~X~~	~~X~~	~~X~~	~~X~~			~~E~~	~~3~~	~~P~~	~~BN~~	
3	- 02	MW-708-Q417		1600		X													E	1	P	BN	
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jordan Ferrone	10/24/17 1610		10/24/17 @1634
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
	10/24/17 @1912	Jordan Rdguez	10/24/17 19:12
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/24/2017	Workorder:	N026662
Rep sample Temp (Deg C):	2.4/2.2/2.8	IR Gun ID:	1

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 11/3/2017

Reviewed By: 11/06/2017

ASSET Laboratories

WORK ORDER Summary

25-Oct-17

WorkOrder: N026662

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 10/24/2017

Comments: Title 22 Metals: Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N026662-001A	TW-02D-Q317	10/24/2017 8:50:00 AM	11/7/2017	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026662-001B			11/7/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			11/7/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			11/7/2017		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N026662-001C			11/7/2017		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			11/7/2017		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			11/7/2017			Total Dissolved Solids Prep	☐	☐	☐	WW
			11/7/2017		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			11/7/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			11/7/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			11/7/2017		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N026662-002A	MW-708-Q417	10/24/2017 4:00:00 PM	11/7/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N026662-003A	FOLDER	11/7/2017	11/7/2017		EDD	RWQCB	☐	☐	☐	LAB
			11/7/2017		Folder	Folder	☐	☐	☐	LAB
			11/7/2017		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N026662

NAME	TEST METHOD
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	EPA 120.1, SM 2540C, SM 2320 B

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 64408 **Analyst:** LSR

ASSET #: N026662 **Date Analyzed:** 10/26/2017

Method: EPA 160.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer LSR Date: 11/07/2017

2nd Level Reviewer RB 11/08/17 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N026662-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.9588 - 59.8711)*1000000}{40}$$

= 2192.5 mg/L

Reporting result in two significant figures,

TDS = 2200 mg/L

Julia Ramit 11/7/2017

11/08/17

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/26/2017 1:15:53**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 11/7/2017

Prep Batch **64408** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	~~pH~~ COM	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-64408	Water	10ST/7D/87	100	☐	0	0	100	1.000		
MB-64408	Water		100	☐	0	0	100	1.000		
N026662-001C	Groundwater	MRL 3620 3720	100 /40	☐	0	0	100	1.000		
N026664-011A	Groundwater	47000	100 /2	☐	0	0	100	1.000		
N026664-012A	Groundwater	199300	100 /0.5	☐	0	0	100	1.000		
N026664-012A-DU	Groundwater	1	100 /0.5	☐	0	0	100	1.000		
N026679-001C	Water	1796	100 /75	☐	0	0	100	1.000		
N026679-002C	Water	2050	100 /60	☐	0	0	100	1.000		
N026679-003C	Water	2860	100 /50	☐	0	0	100	1.000		
N026689-001D	Groundwater	7030	100 /20	☐	0	0	100	1.000		
N026689-002D	Groundwater	7020	100 /20	☐	0	0	100	1.000		
N026689-003C	Groundwater	6900	100 /20	☐	0	0	100	1.000		
N026689-004C	Groundwater	7090	100 /20	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9311

RB 11/08/17

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/26/2017 1:15:53**
Prep End Date: **10/27/2017 10:30:0**
Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 11/7/2017
Prep Batch **64408** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-64408	Water		100	☐	0	0	100	1.000		
MB-64408	Water		100	☐	0	0	100	1.000		
N026662-001C	Groundwater		40	☐	0	0	100	2.500		
N026664-011A	Groundwater		2	☐	0	0	100	50.000		
N026664-012A	Groundwater		0.5	☐	0	0	100	200.000		
N026664-012A-DU	Groundwater		0.5	☐	0	0	100	200.000		
N026679-001C	Water		75	☐	0	0	100	1.333		
N026679-002C	Water		60	☐	0	0	100	1.667		
N026679-003C	Water		50	☐	0	0	100	2.000		
N026689-001D	Groundwater		20	☐	0	0	100	5.000		
N026689-002D	Groundwater		20	☐	0	0	100	5.000		
N026689-003C	Groundwater		20	☐	0	0	100	5.000		
N026689-004C	Groundwater		20	☐	0	0	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9311	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST171018A	1000 ppm NaCl	LCS	100

RB 11/08/17

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/26/17 1315 –	MB 64408	100	63.8481 63.8482	63.8485 63.8484	
7	LCS 64408	100	54.6268 54.6268	54.7229 54.7233	
1E	N026662-001C	40	59.8712 59.8711	59.9584 59.9588	
1D	N026664-011A	2	60.7624 60.7627	60.8277 60.8281	
1F	12A	0.5	49.6492 49.6490	49.8187 49.8191	
D	12A DUP	0.5	49.3592 49.3591	49.5353 49.5355	
3K	N026679-001C	75	63.3012 63.3014	63.3748 63.3751	
1K	2C	60	53.5209 53.5210	53.5858 53.5862	
2	3C	50	55.5456 55.5456	55.6251 55.6255	
1G	N026689-001D	20	60.5038 60.5037	60.5842 60.5846	

Julia Ramit 11/7/2017

RB 11/08/17

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SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/26/17 1A	N026689-002D	20	61.0356 61.0358	61.1134 61.1137	
D	3C	20	59.1445 59.~~1449~~ .1449 WR 10/26	59.2239 59.2243	
1F	4C	20	60.6345 60.6347	60.7156 60.7159	
Julia Ramit	11/7/2017				

RB 11/08/17

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TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
10/27/2017									
MB-64408	100	63.8482	63.8484	2	1	2			MBLK
LCS-64408	100	54.6268	54.7233	965	1	965			LCS
N026662-001C	40	59.8711	59.9588	877	2.5	2192.5	3720	0.589	SAMP
N026664-011A	2	60.7622	60.8281	659	50	32950	47200	0.698	SAMP
N026664-012A	0.5	49.649	49.8191	1701	200	340200	199300	1.707	SAMP
N026664-012ADUP	0.5	49.3591	49.5355	1764	200	352800	199300	1.770	DUP
N026679-001C	75	63.3014	63.3751	737	1.33333333	982.666667	1796	0.547	SAMP
N026679-002C	60	53.521	53.5862	652	1.66666667	1086.66667	2050	0.530	SAMP
N026679-003C	50	55.5456	55.6255	799	2	1598	2860	0.559	SAMP
N026689-001D	20	60.5037	60.5846	809	5	4045	7030	0.575	SAMP
N026689-002D	20	61.0358	61.1137	779	5	3895	7020	0.555	SAMP
N026689-003C	20	59.1449	59.2243	794	5	3970	6900	0.575	SAMP
N026689-004C	20	60.6347	60.7159	812	5	4060	7090	0.573	SAMP

Julia Ramit 11/7/2017

RB 11/08/17

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 64408 **Analyst:** LSR

ASSET #: N026662 **Date Analyzed:** 10/26/2017

Method: EPA 160.1

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer LSR Date: 11/07/2017

2nd Level Reviewer RB 11/08/17 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: ~~Water~~ Groundwater

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N026662-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(59.9588 - 59.8711)*1000000}{40}$$

= 2192.5 mg/L

Reporting result in two significant figures,

TDS = 2200 mg/L

Julia Ramit 11/7/2017

RLB 11/08/17

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/26/2017 1:15:53**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 11/7/2017

Prep Batch **64408** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	~~pH~~ COM	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-64408	Water	10ST/7D/87	100	☐	0	0	100	1.000		
MB-64408	Water		100	☐	0	0	100	1.000		
N026662-001C	Groundwater	~~3620~~ 3720	100 /40	☐	0	0	100	1.000		
N026664-011A	Groundwater	47000	100 /2	☐	0	0	100	1.000		
N026664-012A	Groundwater	199300	100 /0.5	☐	0	0	100	1.000		
N026664-012A-DU	Groundwater	1	100 /0.5	☐	0	0	100	1.000		
N026679-001C	Water	1796	100 /75	☐	0	0	100	1.000		
N026679-002C	Water	2050	100 /60	☐	0	0	100	1.000		
N026679-003C	Water	2860	100 /50	☐	0	0	100	1.000		
N026689-001D	Groundwater	7030	100 /20	☐	0	0	100	1.000		
N026689-002D	Groundwater	7020	100 /20	☐	0	0	100	1.000		
N026689-003C	Groundwater	6900	100 /20	☐	0	0	100	1.000		
N026689-004C	Groundwater	7090	100 /20	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

9311

RB 11/08/17

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/26/2017 1:15:53**
Prep End Date: **10/27/2017 10:30:0**
Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 11/7/2017
Prep Batch **64408** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-64408	Water		100	☐	0	0	100	1.000		
MB-64408	Water		100	☐	0	0	100	1.000		
N026662-001C	Groundwater		40	☐	0	0	100	2.500		
N026664-011A	Groundwater		2	☐	0	0	100	50.000		
N026664-012A	Groundwater		0.5	☐	0	0	100	200.000		
N026664-012A-DU	Groundwater		0.5	☐	0	0	100	200.000		
N026679-001C	Water		75	☐	0	0	100	1.333		
N026679-002C	Water		60	☐	0	0	100	1.667		
N026679-003C	Water		50	☐	0	0	100	2.000		
N026689-001D	Groundwater		20	☐	0	0	100	5.000		
N026689-002D	Groundwater		20	☐	0	0	100	5.000		
N026689-003C	Groundwater		20	☐	0	0	100	5.000		
N026689-004C	Groundwater		20	☐	0	0	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
9311	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST171018A	1000 ppm NaCl	LCS	100

RB 11/08/17

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/26/17 1315 –	MB 64408	100	63.8481 63.8482	63.8485 63.8484	
7	LCS 64408	100	54.6268 54.6268	54.7229 54.7233	
1E	N026662-001C	40	59.8712 59.8711	59.9584 59.9588	
1D	N026664-011A	2	60.7624 60.7627	60.8277 60.8281	
1F	12A	0.5	49.6492 49.6490	49.8187 49.8191	
D	12A DUP	0.5	49.3592 49.3591	49.5353 49.5355	
3K	N026679-001C	75	63.3012 63.3014	63.3748 63.3751	
1K	2C	60	53.5209 53.5210	53.5858 53.5862	
2	3C	50	55.5456 55.5456	55.6251 55.6255	
1G	N026689-001D	20	60.5038 60.5037	60.5842 60.5846	

Julia Ramit 11/7/2017

RB 11/08/17

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ORELAP/NELAP Cert 4046

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
10/26/17 1A	N026689-002D	20	61.0356 61.0358	61.1134 61.1137	
D	3C	20	59.1445 59.~~1449~~ .1449 WR 10/25	59.2239 59.2243	
1F	4C	20	60.6345 60.6347	60.7156 60.7159	
Julia Ramit	11/7/2017				

RB 11/08/17

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TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
10/27/2017									
MB-64408	100	63.8482	63.8484	2	1	2			MBLK
LCS-64408	100	54.6268	54.7233	965	1	965			LCS
N026662-001C	40	59.8711	59.9588	877	2.5	2192.5	3720	0.589	SAMP
N026664-011A	2	60.7622	60.8281	659	50	32950	47200	0.698	SAMP
N026664-012A	0.5	49.649	49.8191	1701	200	340200	199300	1.707	SAMP
N026664-012ADUP	0.5	49.3591	49.5355	1764	200	352800	199300	1.770	DUP
N026679-001C	75	63.3014	63.3751	737	1.33333333	982.666667	1796	0.547	SAMP
N026679-002C	60	53.521	53.5862	652	1.66666667	1086.66667	2050	0.530	SAMP
N026679-003C	50	55.5456	55.6255	799	2	1598	2860	0.559	SAMP
N026689-001D	20	60.5037	60.5846	809	5	4045	7030	0.575	SAMP
N026689-002D	20	61.0358	61.1137	779	5	3895	7020	0.555	SAMP
N026689-003C	20	59.1449	59.2243	794	5	3970	6900	0.575	SAMP
N026689-004C	20	60.6347	60.7159	812	5	4060	7090	0.573	SAMP

Julia Ramit 11/7/2017

RB 11/08/17

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R118829
ASSET #: N026662

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 10/25/2017

Method:

[ ] EPA 300.0
[X] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X					
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 10/29/2017

2nd Level Reviewer 11/8/2017 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N026662-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 9.9921 * 20$$

$$Cr^{+6}, \mu g/L = 199.84$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 200}$$

rba 10/29/2017

ANALYSIS RUN LOG

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

rba 10/7/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 10/7/2017

INJECTION LOG: 171025A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	BLANK	BLANK	1	Hexavalent Chromium	10/25/17 3:45 AM	Not Reported
12	BLANK	BLANK	1	Hexavalent Chromium	10/25/17 3:56 AM	Not Reported
13	CCV-1	CCV	1	Hexavalent Chromium	10/25/17 4:05 AM	Reported
14	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/25/17 4:15 AM	Reported
15	CCB-1	CCB	1	Hexavalent Chromium	10/25/17 4:24 AM	Reported
16	MB-R118829	MBLK	1	Hexavalent Chromium	10/25/17 4:34 AM	Reported
17	LCS-R118829	LCS	1	Hexavalent Chromium	10/25/17 4:43 AM	Reported
18	N026664-001A	SAMP	100	Hexavalent Chromium	10/25/17 4:53 AM	Not Reported
19	N026664-009A	SAMP	25	Hexavalent Chromium	10/25/17 5:02 AM	Reported
20	N026664-009AMS	MS	25	Hexavalent Chromium	10/25/17 5:12 AM	Reported
21	N026664-002A	SAMP	5	Hexavalent Chromium	10/25/17 5:21 AM	Reported
22	N026664-003A	SAMP	1	Hexavalent Chromium	10/25/17 5:31 AM	Not Reported
23	N026664-004A	SAMP	1	Hexavalent Chromium	10/25/17 5:40 AM	Not Reported
24	N026664-001A	SAMP	1	Hexavalent Chromium	10/25/17 5:49 AM	Reported
25	N026664-005A	SAMP	1	Hexavalent Chromium	10/25/17 5:59 AM	Reported
26	CCV-2	CCV1	1	Hexavalent Chromium	10/25/17 6:08 AM	Reported
27	CCB-2	CCB	1	Hexavalent Chromium	10/25/17 6:18 AM	Reported
28	N026664-007A	SAMP	1	Hexavalent Chromium	10/25/17 6:27 AM	Reported
29	N026664-008A	SAMP	1	Hexavalent Chromium	10/25/17 6:37 AM	Not Reported
30	N026664-006A	SAMP	5	Hexavalent Chromium	10/25/17 6:46 AM	Reported
31	N026664-001ADUP	DUP	1	Hexavalent Chromium	10/25/17 6:56 AM	Reported
32	N026664-001AMS	MS	1	Hexavalent Chromium	10/25/17 7:05 AM	Reported
33	N026664-009A	SAMP	5	Hexavalent Chromium	10/25/17 7:15 AM	Not Reported
34	N026664-009AMS	MS	5	Hexavalent Chromium	10/25/17 7:24 AM	Not Reported
35	N026664-005AREP	DUP	1	Hexavalent Chromium	10/25/17 7:34 AM	Reported
36	N026664-005AMS	MS	1	Hexavalent Chromium	10/25/17 7:43 AM	Reported
37	N026664-009AREP	DUP	25	Hexavalent Chromium	10/25/17 7:52 AM	Reported
38	CCV-3	CCV	1	Hexavalent Chromium	10/25/17 8:02 AM	Reported
39	CCB-3	CCB	1	Hexavalent Chromium	10/25/17 8:11 AM	Reported
40	N026664-011AMS	MS	5	Hexavalent Chromium	10/25/17 8:21 AM	Not Reported
41	N026664-011A	SAMP	5	Hexavalent Chromium	10/25/17 8:30 AM	Not Reported
42	N026664-007AREP	DUP	1	Hexavalent Chromium	10/25/17 8:40 AM	Reported

INJECTION LOG: 171025A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026664-007AMS	MS	1	Hexavalent Chromium	10/25/17 8:49 AM	Reported
44	N026664-011A	SAMP	25	Hexavalent Chromium	10/25/17 8:59 AM	Reported
45	N026664-011AMS	MS	25	Hexavalent Chromium	10/25/17 9:08 AM	Reported
46	N026664-010A	SAMP	25	Hexavalent Chromium	10/25/17 9:18 AM	Not Reported
47	N026664-010AMS	MS	25	Hexavalent Chromium	10/25/17 9:27 AM	Not Reported
48	N026664-012A	SAMP	25	Hexavalent Chromium	10/25/17 9:36 AM	Not Reported
49	N026664-012AMS	MS	25	Hexavalent Chromium	10/25/17 9:46 AM	Not Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	10/25/17 9:55 AM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	10/25/17 10:05 AM	Reported
52	N026664-011AREP	DUP	25	Hexavalent Chromium	10/25/17 10:14 AM	Reported
53	N026664-008A	SAMP	10	Hexavalent Chromium	10/25/17 10:24 AM	Reported
54	N026664-008AREP	DUP	10	Hexavalent Chromium	10/25/17 10:33 AM	Reported
55	N026664-008AMS	MS	10	Hexavalent Chromium	10/25/17 10:43 AM	Reported
56	N026664-003A	SAMP	5	Hexavalent Chromium	10/25/17 10:52 AM	Reported
57	N026664-003AREP	DUP	5	Hexavalent Chromium	10/25/17 11:02 AM	Reported
58	N026664-004A	SAMP	5	Hexavalent Chromium	10/25/17 11:11 AM	Reported
59	N026664-004AREP	DUP	5	Hexavalent Chromium	10/25/17 11:21 AM	Reported
60	N026664-012A	SAMP	125	Hexavalent Chromium	10/25/17 11:30 AM	Not Reported
61	N026664-012A	SAMP	125	Hexavalent Chromium	10/25/17 11:40 AM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	10/25/17 11:52 AM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	10/25/17 12:01 PM	Reported
64	N026664-012AREP	DUP	125	Hexavalent Chromium	10/25/17 12:10 PM	Reported
65	N026664-006AREP	DUP	5	Hexavalent Chromium	10/25/17 12:20 PM	Not Reported
66	N026664-010A	SAMP	125	Hexavalent Chromium	10/25/17 12:29 PM	Reported
67	N026664-010AREP	DUP	125	Hexavalent Chromium	10/25/17 12:39 PM	Reported
68	N026664-002AREP	DUP	5	Hexavalent Chromium	10/25/17 12:48 PM	Reported
69	N026664-012A	SAMP	625	Hexavalent Chromium	10/25/17 12:58 PM	Not Reported
70	N026664-006AREP	DUP	5	Hexavalent Chromium	10/25/17 1:07 PM	Reported
71	N026664-012AREP	REP	625	Hexavalent Chromium	10/25/17 1:17 PM	Not Reported
72	N026664-010A	SAMP	625	Hexavalent Chromium	10/25/17 1:26 PM	Not Reported
73	N026664-010AREP	REP	625	Hexavalent Chromium	10/25/17 1:36 PM	Not Reported
74	CCV-6	CCV1	1	Hexavalent Chromium	10/25/17 1:45 PM	Reported
75	CCB-6	CCB	1	Hexavalent Chromium	10/25/17 1:55 PM	Reported
76	N026664-012AMS	MS	125	Hexavalent Chromium	10/25/17 2:04 PM	Reported
77	N026664-010AMS	MS	125	Hexavalent Chromium	10/25/17 2:13 PM	Reported
78	N026664-003AMS	MS	5	Hexavalent Chromium	10/25/17 2:23 PM	Reported
79	N026664-004AMS	MS	5	Hexavalent Chromium	10/25/17 2:32 PM	Reported
80	N026664-006AMS	MS	5	Hexavalent Chromium	10/25/17 2:42 PM	Reported
81	N026664-002AMS	MS	5	Hexavalent Chromium	10/25/17 2:51 PM	Reported
82	N026665-001A	SAMP	20	Hexavalent Chromium	10/25/17 3:01 PM	Not Reported
83	N026662-001A	SAMP	100	Hexavalent Chromium	10/25/17 3:01 PM	Not Reported
84	N026662-001AMS	MS	100	Hexavalent Chromium	10/25/17 3:12 PM	Not Reported

INJECTION LOG: 171025A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	N026662-001AMSD	MSD	100	Hexavalent Chromium	10/25/17 3:21 PM	Not Reported
86	CCV-7	CCV	1	Hexavalent Chromium	10/25/17 3:31 PM	Reported
87	CCB-7	CCB	1	Hexavalent Chromium	10/25/17 3:40 PM	Reported
88	N026662-002A	SAMP	1	Hexavalent Chromium	10/25/17 3:50 PM	Reported
89	N026662-002AMS	MS	1	Hexavalent Chromium	10/25/17 3:59 PM	Reported
90	N026665-001A	SAMP	20	Hexavalent Chromium	10/25/17 4:08 PM	Reported
91	CCV-8	CCV1	1	Hexavalent Chromium	10/25/17 5:19 PM	Reported
92	CCB-8	CCB	1	Hexavalent Chromium	10/25/17 5:31 PM	Reported
93	N026662-001A	SAMP	20	Hexavalent Chromium	10/25/17 6:25 PM	Reported
94	N026662-001AMS	MS	20	Hexavalent Chromium	10/25/17 6:37 PM	Reported
95	N026662-001AMSD	MSD	20	Hexavalent Chromium	10/25/17 6:46 PM	Reported
96	CCV-9	CCV	1	Hexavalent Chromium	10/25/17 6:55 PM	Reported
97	CCB-9	CCB	1	Hexavalent Chromium	10/25/17 7:05 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171025A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**26/Oct/17 08:18:47**
No. of Injections:	**100**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	BLANK	1	1000	Unknown		10/25/2017 03:45	Finished	BLANK
12	BLANK	2	1000	Unknown		10/25/2017 03:56	Finished	BLANK
13	CCV-1,CCV,1,	3	1000	Unknown		10/25/2017 04:05	Finished	CCV @5ppb, IWST-171002A
14	PQL@0.2ppb,CCV2,	4	1000	Unknown		10/25/2017 04:15	Finished	PQL @ 0.2ppb
15	CCB-1,CCB,1,	5	1000	Unknown		10/25/2017 04:24	Finished	CCB R171012B
16	MB-H2O,MBLK,1	6	1000	Unknown		10/25/2017 04:34	Finished	MB R171012B
17	LCS-H2O,LCS,1	7	1000	Unknown		10/25/2017 04:43	Finished	LCS, IWST-171002B
18	N026664-001A,SAMP	8	1000	Unknown		10/25/2017 04:53	Finished	SAMP,0.1>10mL
19	N026664-009A,SAMP	9	1000	Unknown		10/25/2017 05:02	Finished	SAMP,0.4>10mL
20	N026664-009AMS,MS	10	1000	Unknown		10/25/2017 05:12	Finished	MS (1ppb), IWST-171002B,0.4
21	N026664-002A,SAMP	11	1000	Unknown		10/25/2017 05:21	Finished	SAMP,2>10mL
22	N026664-003A,SAMP	12	1000	Unknown		10/25/2017 05:31	Finished	SAMP,10mL
23	N026664-004A,SAMP	13	1000	Unknown		10/25/2017 05:40	Finished	SAMP,10mL
24	N026664-001A,SAMP	14	1000	Unknown		10/25/2017 05:49	Finished	SAMP,10mL
25	N026664-005A,SAMP	15	1000	Unknown		10/25/2017 05:59	Finished	SAMP,10mL
26	CCV-2,CCV1,1,	16	1000	Unknown		10/25/2017 06:08	Finished	CCV @10ppb, IWST-171002A
27	CCB-2,CCB,1,	17	1000	Unknown		10/25/2017 06:18	Finished	CCB R171012B
28	N026664-007A,SAMP	18	1000	Unknown		10/25/2017 06:27	Finished	SAMP,10mL
29	N026664-008A,SAMP	19	1000	Unknown		10/25/2017 06:37	Finished	SAMP,10mL
30	N026664-006A,SAMP	20	1000	Unknown		10/25/2017 06:46	Finished	SAMP,2>10mL
31	N026664-001ADUP,D	21	1000	Unknown		10/25/2017 06:56	Finished	DUP,10mL
32	N026664-001AMS,MS	22	1000	Unknown		10/25/2017 07:05	Finished	MS (5ppb), IWST-171002B,10
33	N026664-009A,SAMP	23	1000	Unknown		10/25/2017 07:15	Finished	SAMP,2>10mL
34	N026664-009AMS,MS	24	1000	Unknown		10/25/2017 07:24	Finished	MS (1ppb), IWST-171002B,2>1
35	N026664-005AREP,D	25	1000	Unknown		10/25/2017 07:34	Finished	REP,10mL
36	N026664-005AMS,MS	26	1000	Unknown		10/25/2017 07:43	Finished	MS (5ppb), IWST-171002B,10
37	N026664-009AREP,D	27	1000	Unknown		10/25/2017 07:52	Finished	REP,0.4>10mL
38	CCV-3,CCV,1,	28	1000	Unknown		10/25/2017 08:02	Finished	CCV @5ppb, IWST-171002A
39	CCB-3,CCB,1,	29	1000	Unknown		10/25/2017 08:11	Finished	CCB R171012B
40	N026664-011AMS,MS	30	1000	Unknown		10/25/2017 08:21	Finished	MS (1ppb), IWST-171002B,2>1
41	N026664-011A,SAMP	31	1000	Unknown		10/25/2017 08:30	Finished	SAMP,2>10mL
42	N026664-007AREP,D	32	1000	Unknown		10/25/2017 08:40	Finished	REP,10mL
43	N026664-007AMS,MS	33	1000	Unknown		10/25/2017 08:49	Finished	MS (5ppb), IWST-171002B,10
44	N026664-011A,SAMP	34	1000	Unknown		10/25/2017 08:59	Finished	SAMP,0.4>10mL
45	N026664-011AMS,MS	35	1000	Unknown		10/25/2017 09:08	Finished	MS (1ppb), IWST-171002B,0.4
46	N026664-010A,SAMP	36	1000	Unknown		10/25/2017 09:18	Finished	SAMP,0.4>10mL
47	N026664-010AMS,MS	37	1000	Unknown		10/25/2017 09:27	Finished	MS (1ppb), IWST-171002B,0.4
48	N026664-012A,SAMP	38	1000	Unknown		10/25/2017 09:36	Finished	SAMP,0.4>10mL
49	N026664-012AMS,MS	39	1000	Unknown		10/25/2017 09:46	Finished	MS (1ppb), IWST-171002B,0.4
50	CCV-4,CCV1,1,	40	1000	Unknown		10/25/2017 09:55	Finished	CCV @10ppb, IWST-171002A
51	CCB-4,CCB,1,	41	1000	Unknown		10/25/2017 10:05	Finished	CCB R171012B
52	N026664-011AREP,D	42	1000	Unknown		10/25/2017 10:14	Finished	REP,0.4>10mL
53	N026664-008A,SAMP	43	1000	Unknown		10/25/2017 10:24	Finished	SAMP,1>10mL
54	N026664-008AREP,D	44	1000	Unknown		10/25/2017 10:33	Finished	REP,1>10mL
55	N026664-008AMS,MS	45	1000	Unknown		10/25/2017 10:43	Finished	MS (5ppb), IWST-171002B,1>1
56	N026664-003A,SAMP	46	1000	Unknown		10/25/2017 10:52	Finished	SAMP,2>10mL
57	N026664-003AREP,D	47	1000	Unknown		10/25/2017 11:02	Finished	REP,2>10mL
58	N026664-004A,SAMP	48	1000	Unknown		10/25/2017 11:11	Finished	SAMP,2>10mL
59	N026664-004AREP,D	49	1000	Unknown		10/25/2017 11:21	Finished	REP,2>10mL
60	N026664-012A,SAMP	50	1000	Unknown		10/25/2017 11:30	Finished	SAMP,0.08>10mL

61	N026664-012A,SAMP	1	1000	Unknown		10/25/2017 11:40	Finished	SAMP,0.08>10mL
62	CCV-5,CCV,1,	2	1000	Unknown		10/25/2017 11:52	Finished	CCV @5ppb, IWST-171002A
63	CCB-5,CCB,1,	3	1000	Unknown		10/25/2017 12:01	Finished	CCB R171012B
64	N026664-012AREP,R	4	1000	Unknown		10/25/2017 12:10	Finished	CCB R171012B
65	N026664-006AREP,D	5	1000	Unknown		10/25/2017 12:20	Finished	REP,2>10mL
66	N026664-010A,SAMP	6	1000	Unknown		10/25/2017 12:29	Finished	SAMP,0.08>10mL
67	N026664-010AREP,R	7	1000	Unknown		10/25/2017 12:39	Finished	REP,0.08>10mL
68	N026664-002AREP,D	8	1000	Unknown		10/25/2017 12:48	Finished	REP,2>10mL
69	N026664-012A,SAMP	9	1000	Unknown		10/25/2017 12:58	Finished	SAMP,0.016>10mL
70	N026664-006AREP,D	10	1000	Unknown		10/25/2017 13:07	Finished	REP,2>10mL
71	N026664-012AREP,R	11	1000	Unknown		10/25/2017 13:17	Finished	REP,0.016>10mL
72	N026664-010A,SAMP	12	1000	Unknown		10/25/2017 13:26	Finished	SAMP,0.016>10mL
73	N026664-010AREP,R	13	1000	Unknown		10/25/2017 13:36	Finished	REP,0.016>10mL
74	CCV-6,CCV1,1,	14	1000	Unknown		10/25/2017 13:45	Finished	CCV @10ppb, IWST-171002A
75	CCB-6,CCB,1,	15	1000	Unknown		10/25/2017 13:55	Finished	CCB R171012B
76	N026664-012AMS,MS	16	1000	Unknown		10/25/2017 14:04	Finished	MS (1ppb), IWST-171002B,0.0
77	N026664-010AMS,MS	17	1000	Unknown		10/25/2017 14:13	Finished	MS (1ppb), IWST-171002B,0.0
78	N026664-003AMS,MS	18	1000	Unknown		10/25/2017 14:23	Finished	MS (5ppb), IWST-171002B,2>1
79	N026664-004AMS,MS	19	1000	Unknown		10/25/2017 14:32	Finished	MS (1ppb), IWST-171002B,2>1
80	N026664-006AMS,MS	20	1000	Unknown		10/25/2017 14:42	Finished	MS (5ppb), IWST-171002B,2>1
81	N026664-002AMS,MS	21	1000	Unknown		10/25/2017 14:51	Finished	MS (5ppb), IWST-171002B,2>1
82	N026665-001A,SAMP	22	1000	Unknown		10/25/2017 15:01	Interrupted	SAMP,0.5>10mL
83	N026662-001A,SAMP	23	1000	Unknown		10/25/2017 15:01	Finished	SAMP,0.1>10mL
84	N026662-001AMS,MS	24	1000	Unknown		10/25/2017 15:12	Finished	MS (5ppb), IWST-171002B,0.1
85	N026662-001AMSD,M	25	1000	Unknown		10/25/2017 15:21	Finished	MSD (5ppb), IWST-171002B,0.
86	CCV-7,CCV,1,	26	1000	Unknown		10/25/2017 15:31	Finished	CCV @5ppb, IWST-171002A
87	CCB-7,CCB,1,	27	1000	Unknown		10/25/2017 15:40	Finished	CCB R171012B
88	N026662-002A,SAMP	28	1000	Unknown		10/25/2017 15:50	Finished	SAMP,10mL
89	N026662-002AMS,MS	29	1000	Unknown		10/25/2017 15:59	Finished	MS (1ppb), IWST-171002B,10
90	N026665-001A,SAMP	30	1000	Unknown		10/25/2017 16:08	Finished	SAMP,0.5>10mL
91	CCV-8,CCV1,1,	31	1000	Unknown		10/25/2017 17:19	Finished	CCV @10ppb, IWST-171002A
92	CCB-8,CCB,1,	32	1000	Unknown		10/25/2017 17:31	Finished	CCB R171012B
93	N026662-001A,SAMP	34	1000	Unknown		10/25/2017 18:25	Finished	SAMP,0.5>10mL
94	N026662-001AMS,MS	35	1000	Unknown		10/25/2017 18:37	Finished	MS (5ppb), IWST-171002B,0.5
95	N026662-001AMSD,M	36	1000	Unknown		10/25/2017 18:46	Finished	MSD (5ppb), IWST-171002B,0.
96	CCV-9,CCV,1,	37	1000	Unknown		10/25/2017 18:55	Finished	CCV @5ppb, IWST-171002A
97	CCB-9,CCB,1,	38	1000	Unknown		10/25/2017 19:05	Finished	CCB R171012B
98	SHUTDOWN	39	1000	Unknown		10/25/2017 19:14	Finished	
99	Eluent: R171024A	40	1000	Unknown		n.a.	Finished	Eluent
100	PCR: R171024B	41	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 10/25/17
Time Prepared: 0415A/1709A
Prepared By: MSA

slope: 97.62
pH 4: 4.01 @ 16.3°C
7: 6.99 @ 16.3°C
10: 10.03 @ 16.2°C
LCS: 6.96 @ 17.5°C

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CLN - 170620A
NH4OH + NH4SO4 eluent: M171624A
NH4OH + NH4SO4 buffer: M171012B

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M26664-001A	8.47	9.35	~1000 mL	~	+0.2 mL M171012B/10 mL FV	
2)	2A	8.06	9.41				
3)	3A	8.05	9.21				
4)	4A	7.89	9.08				
5)	~~5A~~	8.61	9.25				
6)	6A	7.91	9.19				
7)	7A	8.29	9.38				
8)	~~8A~~	7.85	9.34				
9)	9A	8.87	9.35				
10)	10A	8.35	9.30				
11)	11A	9.34	9.47				
12)	12A	7.95	9.27				
13)	~~13A~~						
14)	M26661-1A	9.34	-	~350 mL	~250 mL		
15)	2A	9.46	-				
	3A	9.40	-				

Sample Preparation

Date Prepared: 10/25/17
Time Prepared: 1309H
Prepared By: MSA

Reagent ID:
Sulfuric Acid: 9401
Diphenylcarbazide: CLN - 170620A
NH4OH + NH4SO4 eluent: M171024A
NH4OH + NH4SO4 buffer: M171012B

6N NaOH: M171801A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M26661-4A	9.48	-	~250 mL	~250 mL		
2)	5A	9.50	-				
3)	6A	9.47	-				
4)	7A	9.68	-				
5)	M26662-1A	9.46	-				
6)	2A	9.57	-				
7)	M26665-001A	9.10	9.56			+ 7 drops NaOH	
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 13

jba 10/29/2017

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 10/2/2017

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0524	0.2415	1.2450	2.4569	3.7182	4.9418	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-170814H	IWST-171002A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ICV**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2809625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.034	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2809626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.192	0.20	0.2000	0	95.8	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCV**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.013	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.209	0.20	0.2000	0	104	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.058	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCV**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.957	0.20	5.000	0	99.1	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.975	0.20	10.00	0	99.8	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCV**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.967	0.20	5.000	0	99.3	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.990	0.20	10.00	0	99.9	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCV**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.984	0.20	5.000	0	99.7	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-8**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ZZZZZZ**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.085	0.20	10.00	0	101	95	105				

Sample ID **CCV-9**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCV**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.971	0.20	5.000	0	99.4	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **ICB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/2/2017**	SeqNo: **2809627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809639**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-9**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **118829**
Client ID: **CCB**	Batch ID: **R118829**	TestNo: **EPA 218.6**		Analysis Date: **10/25/2017**	SeqNo: **2809688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.056	
CCV-5	4.065	
CCV-6	4.056	
CCV-7	4.065	
CCV-8	4.065	
CCV-9	4.065	
Average	4.063	
Actual RT Window	3.983 - 4.143	
Applied RT Window	3.863 - 4.263	
MB-R118829	N.A.	N.A.
LCS-R118829	4.065	PASS
N026664-001A	N.A.	N.A.
N026664-009A	4.006	PASS
N026664-009AMS	4.023	PASS
N026664-002A	4.056	PASS
N026664-003A	4.048	PASS
N026664-004A	4.040	PASS
N026664-001A	4.048	PASS
N026664-005A	4.056	PASS
N026664-007A	4.048	PASS
N026664-008A	4.040	PASS
N026664-006A	4.056	PASS
N026664-001ADUP	4.048	PASS
N026664-001AMS	4.048	PASS
N026664-009A	3.815	FAIL
N026664-009AMS	3.815	FAIL
N026664-005AREP	4.056	PASS
N026664-005AMS	4.056	PASS
N026664-009AREP	4.023	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.056	
CCV-5	4.065	
CCV-6	4.056	
CCV-7	4.065	
CCV-8	4.065	
CCV-9	4.065	
Average	4.063	
Actual RT Window	3.983 - 4.143	
Applied RT Window	3.863 - 4.263	
N026664-011AMS	3.856	FAIL
N026664-011A	3.856	FAIL
N026664-007AREP	4.048	PASS
N026664-007AMS	4.048	PASS
N026664-011A	4.031	PASS
N026664-011AMS	4.031	PASS
N026664-010A	3.856	FAIL
N026664-010AMS	3.848	FAIL
N026664-012A	N.A.	N.A.
N026664-012AMS	N.A.	N.A.
N026664-011AREP	4.031	PASS
N026664-008A	4.056	PASS
N026664-008AREP	4.056	PASS
N026664-008AMS	4.056	PASS
N026664-003A	4.056	PASS
N026664-003AREP	4.056	PASS
N026664-004A	4.056	PASS
N026664-004AREP	4.056	PASS
N026664-012A	3.981	PASS
N026664-012A	3.981	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.056	
CCV-5	4.065	
CCV-6	4.056	
CCV-7	4.065	
CCV-8	4.065	
CCV-9	4.065	
Average	4.063	
Actual RT Window	3.983 - 4.143	
Applied RT Window	3.863 - 4.263	
N026664-012AREP	3.973	PASS
N026664-006AREP	4.056	PASS
N026664-010A	N.A.	N.A.
N026664-010AREP	N.A.	N.A.
N026664-002AREP	4.056	PASS
N026664-012A	4.040	PASS
N026664-006AREP	4.056	PASS
N026664-012AREP	4.048	PASS
N026664-010A	N.A.	N.A.
N026664-010AREP	N.A.	N.A.
N026664-012AMS	3.981	PASS
N026664-010AMS	4.023	PASS
N026664-003AMS	4.056	PASS
N026664-004AMS	4.056	PASS
N026664-006AMS	4.056	PASS
N026664-002AMS	4.056	PASS
N026665-001A	N.A.	N.A.
N026662-001A	4.056	PASS
N026662-001AMS	4.056	PASS
N026662-001AMSD	4.056	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name	Retention Time	Evaluation
CCV-1	4.065	
CCV-2	4.065	
CCV-3	4.065	
CCV-4	4.056	
CCV-5	4.065	
CCV-6	4.056	
CCV-7	4.065	
CCV-8	4.065	
CCV-9	4.065	
Average	4.063	
Actual RT Window	3.983 - 4.143	
Applied RT Window	3.863 - 4.263	
N026662-002A	N.A.	N.A.
N026662-002AMS	4.065	PASS
N026665-001A	4.056	PASS
N026662-001A	4.056	PASS
N026662-001AMS	4.056	PASS
N026662-001AMSD	4.056	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

MDL/LOD & PQL Verification 2017

Method Name: **Hexavalent Chromium by IC**
Method Number: EPA Method 218.6
Analysis Date(s): 5/31/2017
Analyst: Ria Abes

Matrix: **WATER**
Unit: µg/L

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.103

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.194	**97**

RAW DATA



INITIAL CALIBRATION

INJECTION LOG: 171002A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	ICV	ICV	1	Hexavalent Chromium	10/02/17 11:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/02/17 11:46 AM	Reported
13	ICB	ICB	1	Hexavalent Chromium	10/02/17 11:58 AM	Reported
14	MB-R118232	MBLK	1	Hexavalent Chromium	10/02/17 12:07 PM	Reported
15	LCS-R118232	LCS	1	Hexavalent Chromium	10/02/17 12:17 PM	Reported
16	N026187-001D	SAMP	1	Hexavalent Chromium	10/02/17 12:26 PM	Reported
17	N026152-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:36 PM	Not Reported
18	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 12:45 PM	Not Reported
19	N026156-001A	SAMP	1	Hexavalent Chromium	10/02/17 12:55 PM	Reported
20	N026156-001ADUP	DUP	1	Hexavalent Chromium	10/02/17 1:04 PM	Reported
21	N026156-001AMS	MS	1	Hexavalent Chromium	10/02/17 1:14 PM	Reported
22	N026156-004A	SAMP	1	Hexavalent Chromium	10/02/17 1:23 PM	Reported
23	N026156-004AMS	MS	1	Hexavalent Chromium	10/02/17 1:32 PM	Reported
24	CCV-1	CCV1	1	Hexavalent Chromium	10/02/17 1:42 PM	Reported
25	CCB-1	CCB	1	Hexavalent Chromium	10/02/17 1:51 PM	Reported
26	N026156-002A	SAMP	20	Hexavalent Chromium	10/02/17 2:01 PM	Reported
27	N026156-002AMS	MS	20	Hexavalent Chromium	10/02/17 2:10 PM	Reported
28	N026156-002AMSD	MSD	20	Hexavalent Chromium	10/02/17 2:20 PM	Reported
29	N026156-003A	SAMP	20	Hexavalent Chromium	10/02/17 2:29 PM	Reported
30	N026156-003AMS	MS	20	Hexavalent Chromium	10/02/17 2:39 PM	Reported
31	N026152-001A	SAMP	5	Hexavalent Chromium	10/02/17 2:48 PM	Reported
32	N026152-001A	SAMP	10	Hexavalent Chromium	10/02/17 3:07 PM	Not Reported
33	CCV-2	CCV	1	Hexavalent Chromium	10/02/17 3:19 PM	Reported
34	CCB-2	CCB	1	Hexavalent Chromium	10/02/17 3:28 PM	Reported

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10/9/2017

Injection Log Summary

Sequence Details

Name:	**IC-07_171002A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**02/Oct/17 17:24:15**
No. of Injections:	**37**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	ICV,ICV,1,	11	1000	Unknown		10/02/2017 11:34	Finished	ICV @5ppb, IWST-171002B
12	PQL@0.2ppb,CCV2,1	12	1000	Unknown		10/02/2017 11:46	Finished	PQL @ 0.2ppb
13	ICB,ICB,1,	13	1000	Unknown		10/02/2017 11:58	Finished	ICB R170921A
14	MB-H2O,MBLK,1	14	1000	Unknown		10/02/2017 12:07	Finished	MB R170921A
15	LCS-H2O,LCS,1	15	1000	Unknown		10/02/2017 12:17	Finished	LCS, IWST-171002B
16	N026187-001D,SAMP	16	1000	Unknown		10/02/2017 12:26	Finished	SAMP,10mL
17	N026152-001A,SAMP	17	1000	Unknown		10/02/2017 12:36	Finished	SAMP,10mL
18	BLANK	18	1000	Unknown		10/02/2017 12:45	Finished	BLANK
19	N026156-001A,SAMP	19	1000	Unknown		10/02/2017 12:55	Finished	SAMP,10mL
20	N026156-001ADUP,D	20	1000	Unknown		10/02/2017 13:04	Finished	DUP,10mL
21	N026156-001AMS,MS	21	1000	Unknown		10/02/2017 13:14	Finished	MS (1ppb), IWST-171002B,10
22	N026156-004A,SAMP	22	1000	Unknown		10/02/2017 13:23	Finished	SAMP,10mL
23	N026156-004AMS,MS	23	1000	Unknown		10/02/2017 13:32	Finished	MS (1ppb), IWST-171002B,10
24	CCV-1,CCV1,1,	24	1000	Unknown		10/02/2017 13:42	Finished	CCV @10ppb, IWST-171002A
25	CCB-1,CCB,1,	25	1000	Unknown		10/02/2017 13:51	Finished	CCB R170921A
26	N026156-002A,SAMP	26	1000	Unknown		10/02/2017 14:01	Finished	SAMP,0.5>10mL
27	N026156-002AMS,MS	27	1000	Unknown		10/02/2017 14:10	Finished	MS (5ppb), IWST-171002B,0.5
28	N026156-002AMSD,M	28	1000	Unknown		10/02/2017 14:20	Finished	MSD (5ppb), IWST-171002B,0.
29	N026156-003A,SAMP	29	1000	Unknown		10/02/2017 14:29	Finished	SAMP,0.5>10mL
30	N026156-003AMS,MS	30	1000	Unknown		10/02/2017 14:39	Finished	MS (5ppb), IWST-171002B,0.5
31	N026152-001A,SAMP	31	1000	Unknown		10/02/2017 14:48	Finished	SAMP, 2>10mL
32	N026152-001A,SAMP	33	1000	Unknown		10/02/2017 15:07	Finished	SAMP,1>10mL
33	CCV-2,CCV,1,	34	1000	Unknown		10/02/2017 15:19	Finished	CCV @5ppb, IWST-171002A
34	CCB-2,CCB,1,	35	1000	Unknown		10/02/2017 15:28	Finished	CCB R170921A
35	SHUTDOWN	36	1000	Unknown		10/02/2017 15:38	Finished	
36	Eluent: R171002A	37	1000	Unknown		n.a.	Finished	Eluent
37	PCR: R171002B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

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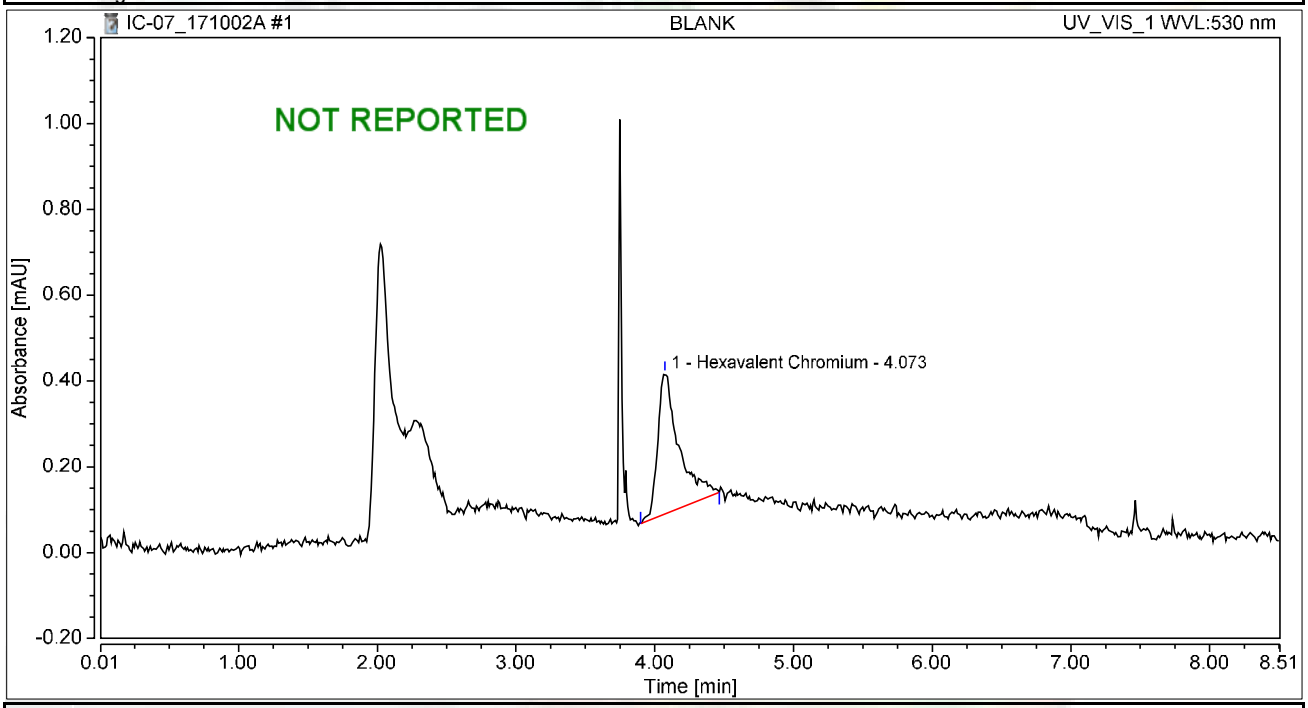
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 09:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

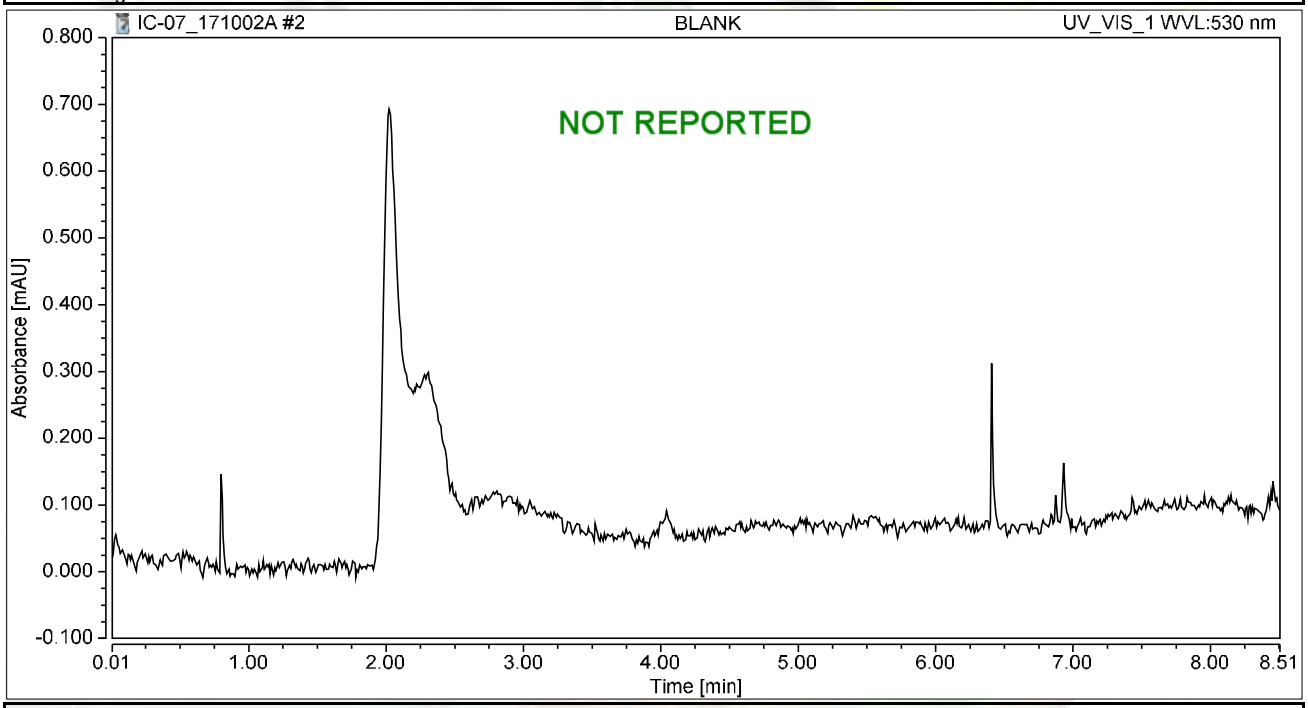
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.073	0.059	0.328	100.00	100.00	0.2368
Total:			**0.059**	**0.328**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

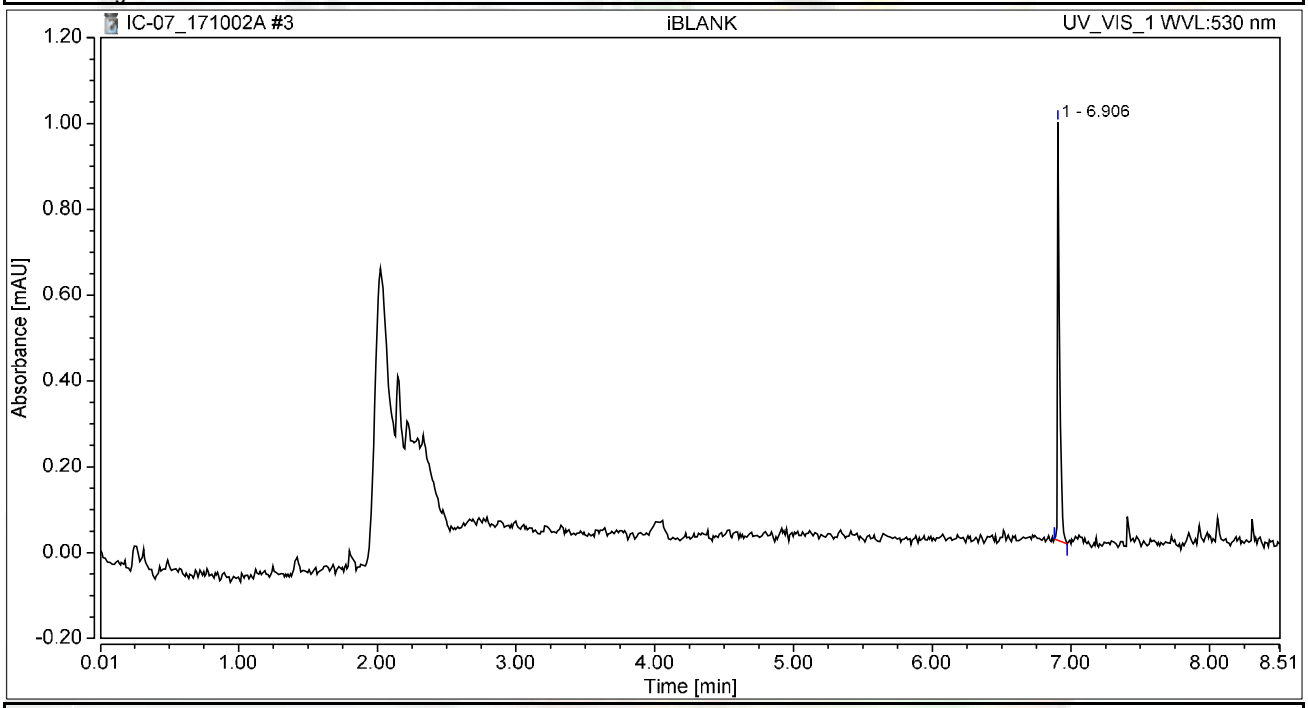
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

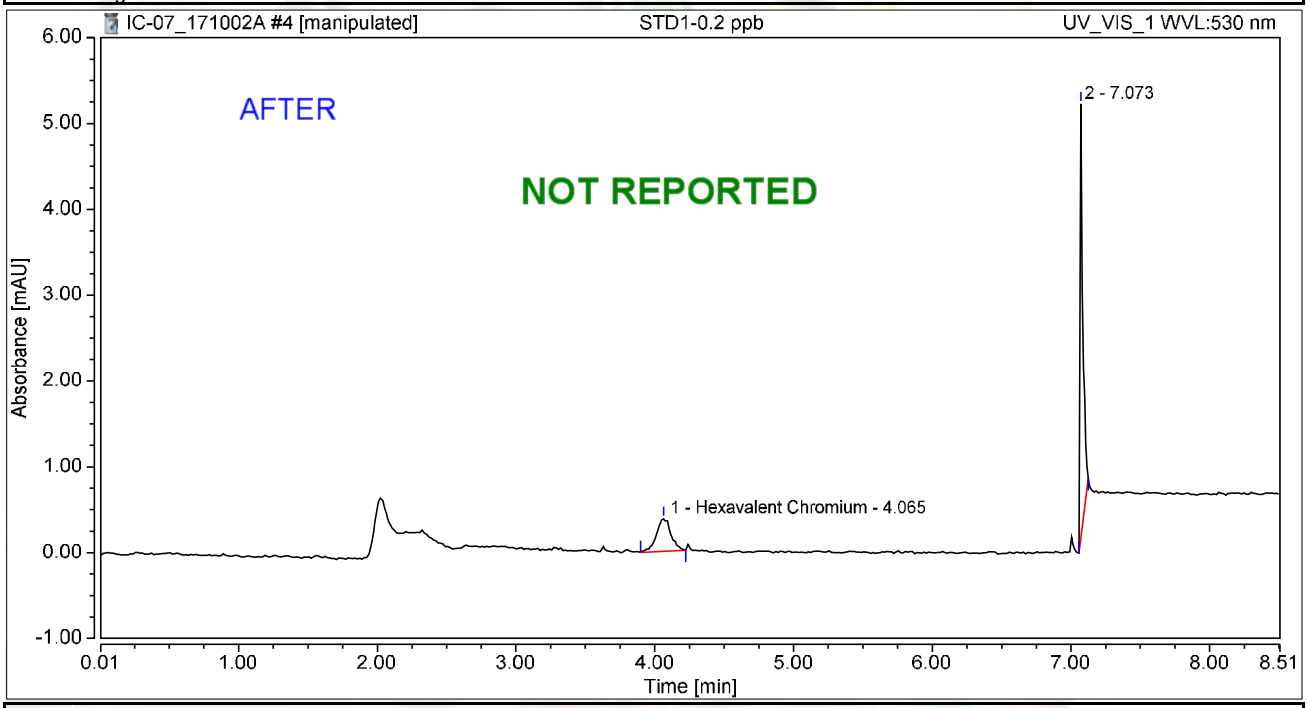
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.906	0.017	0.974	100.00	100.00	n.a.
Total:			**0.017**	**0.974**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.381	26.97	7.06	0.1884
2		7.073	0.126	5.016	73.03	92.94	n.a.
Total:			**0.173**	**5.396**	**100.00**	**100.00**	

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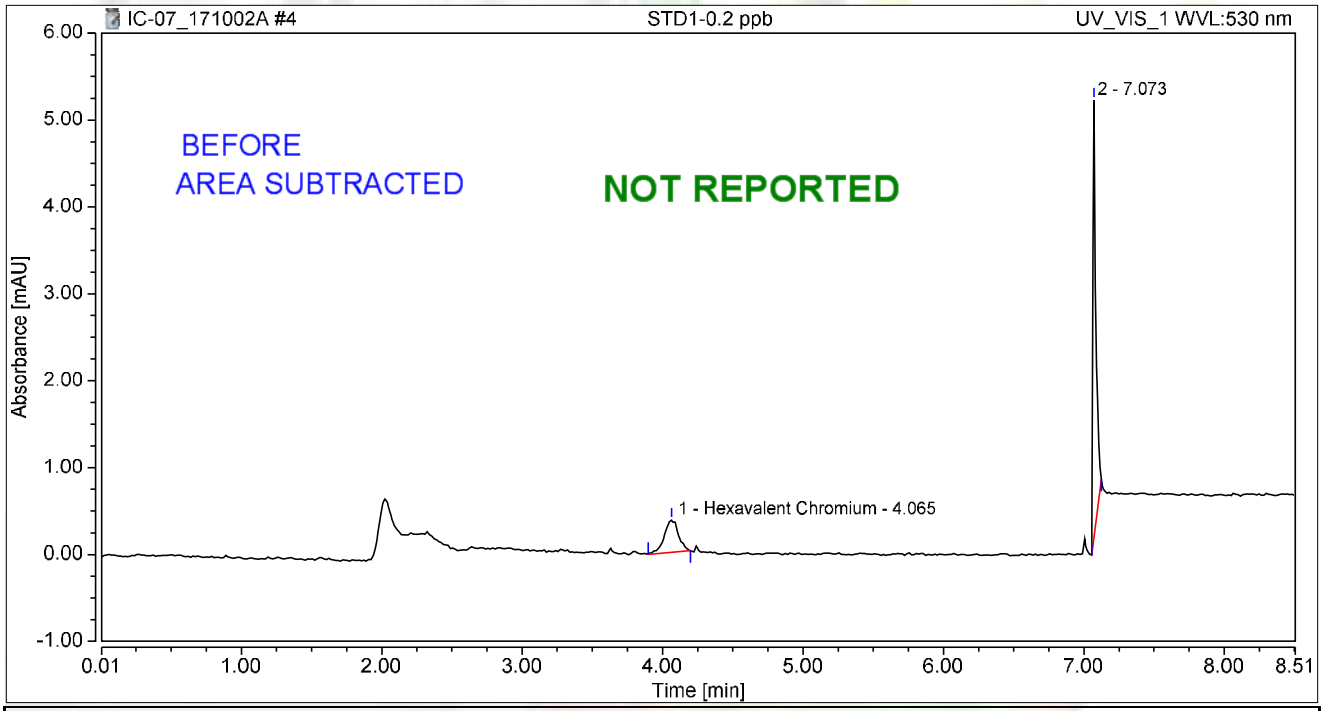
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.044	0.372	25.80	6.90	0.1743
2		7.073	0.126	5.016	74.20	93.10	n.a.
Total:			**0.170**	**5.387**	**100.00**	**100.00**	

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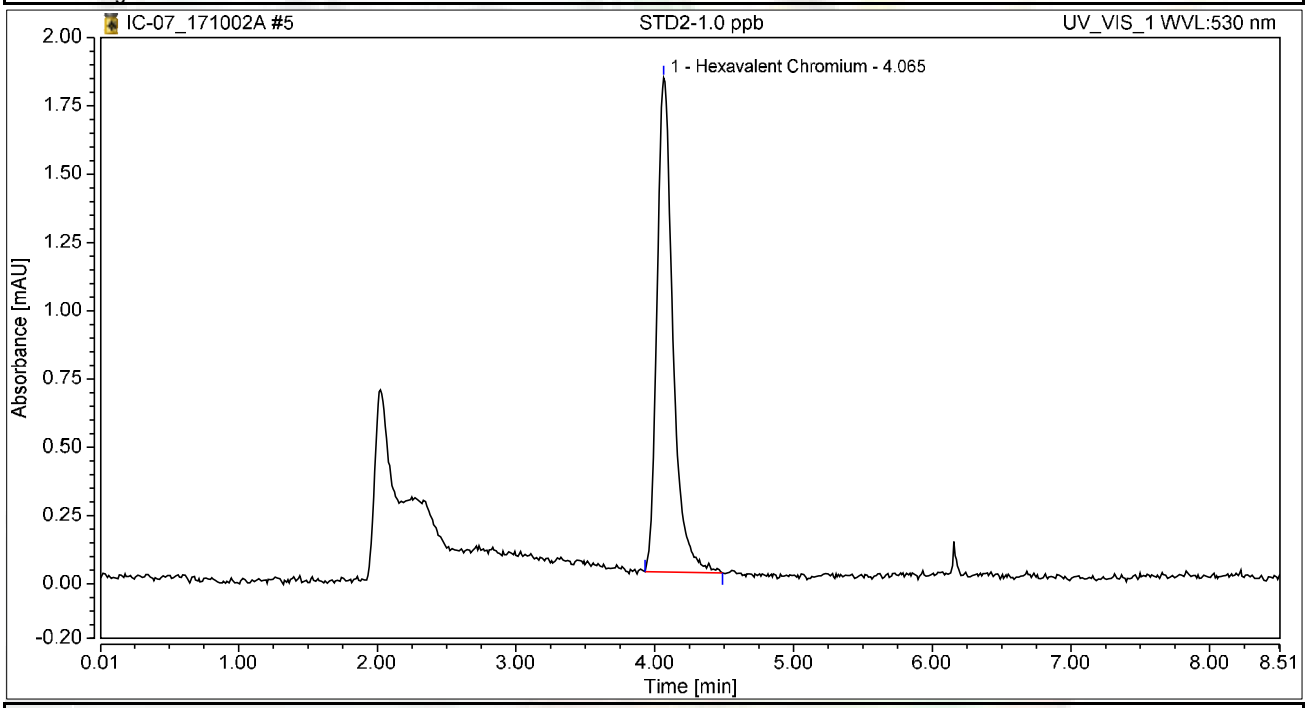
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

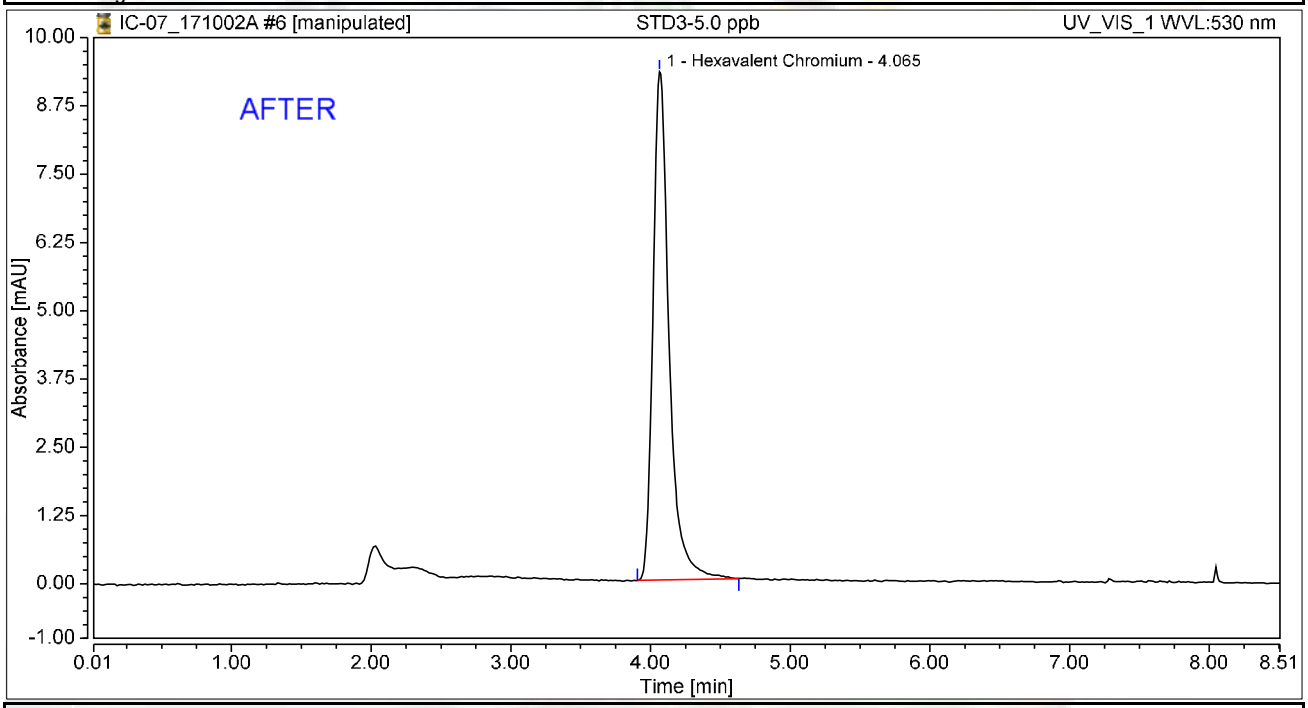
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.242	1.809	100.00	100.00	0.9771
Total:			**0.242**	**1.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.245	9.303	100.00	100.00	5.0364
Total:			**1.245**	**9.303**	**100.00**	**100.00**	

rba 10/7/2017

Reviewed by: My first report/integration
Nancy 10/9/2017

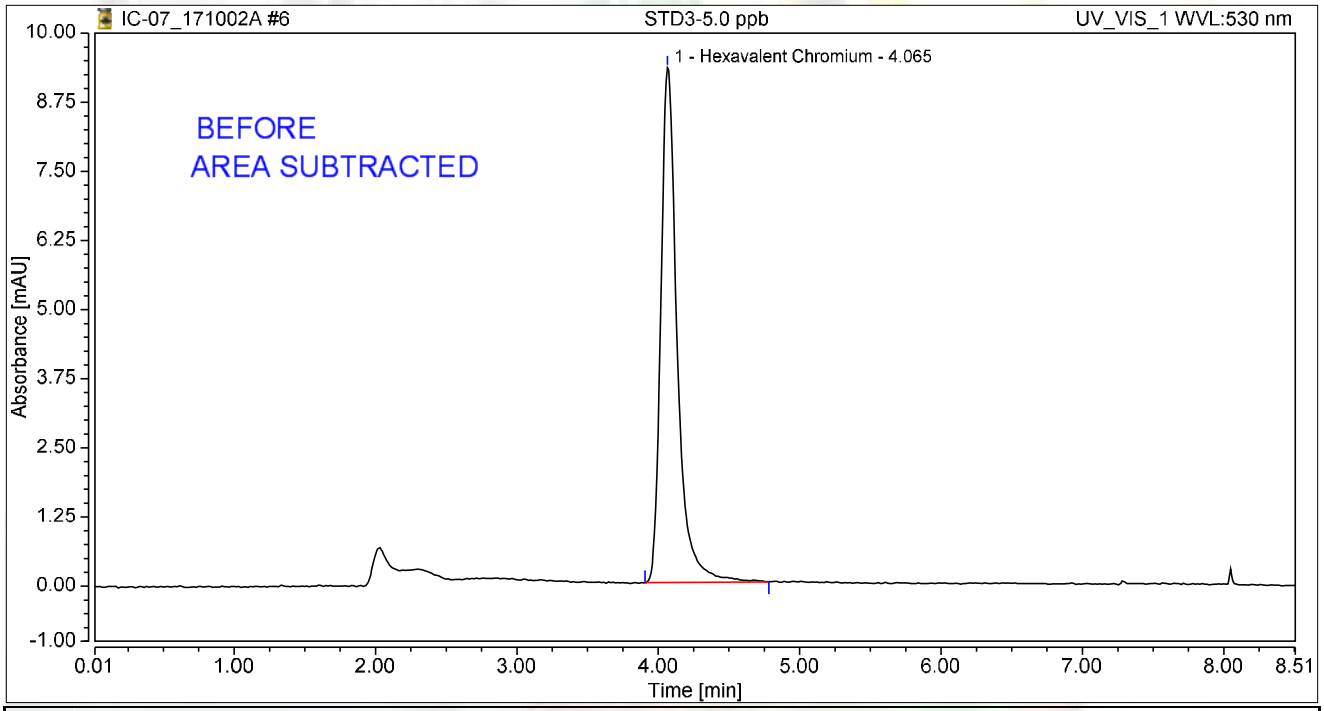
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.256	9.308	100.00	100.00	4.9927
Total:			**1.256**	**9.308**	**100.00**	**100.00**	

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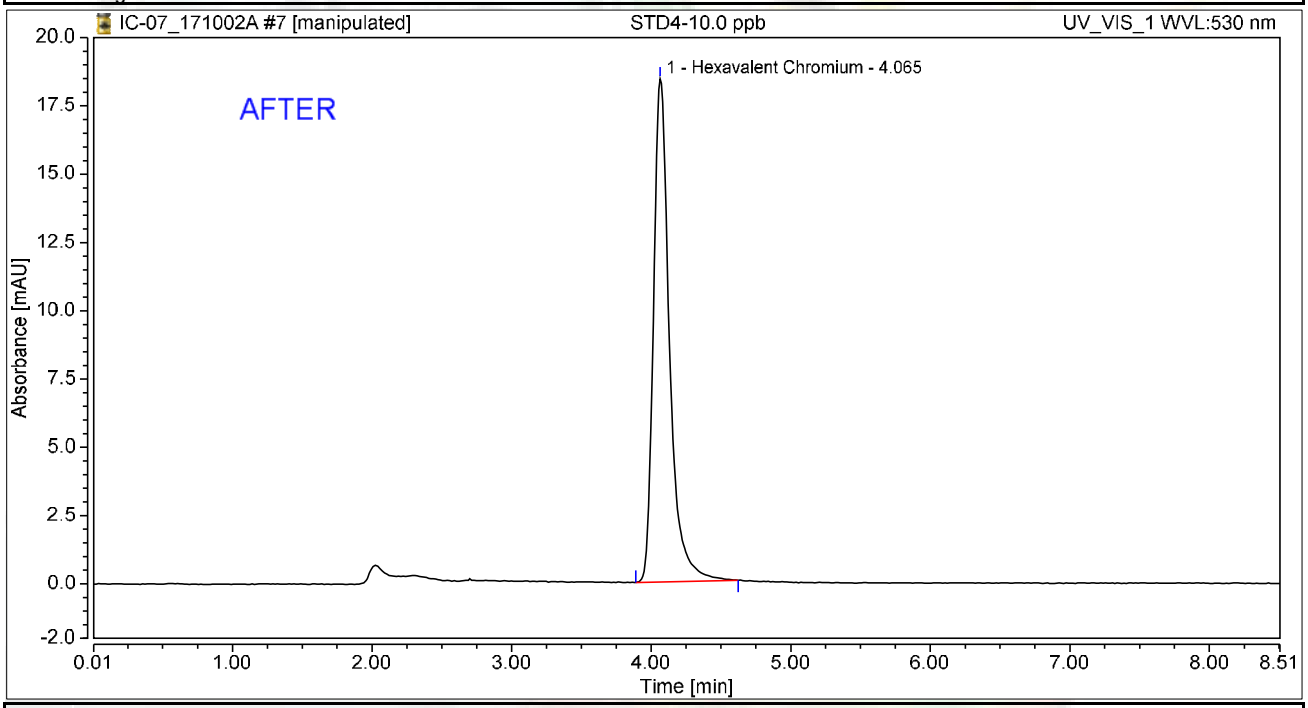
Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.457	18.420	100.00	100.00	9.9392
Total:			**2.457**	**18.420**	**100.00**	**100.00**	

rba 10/7/2017

My first report integration

Reviewed by: Nancy 10/9/2017

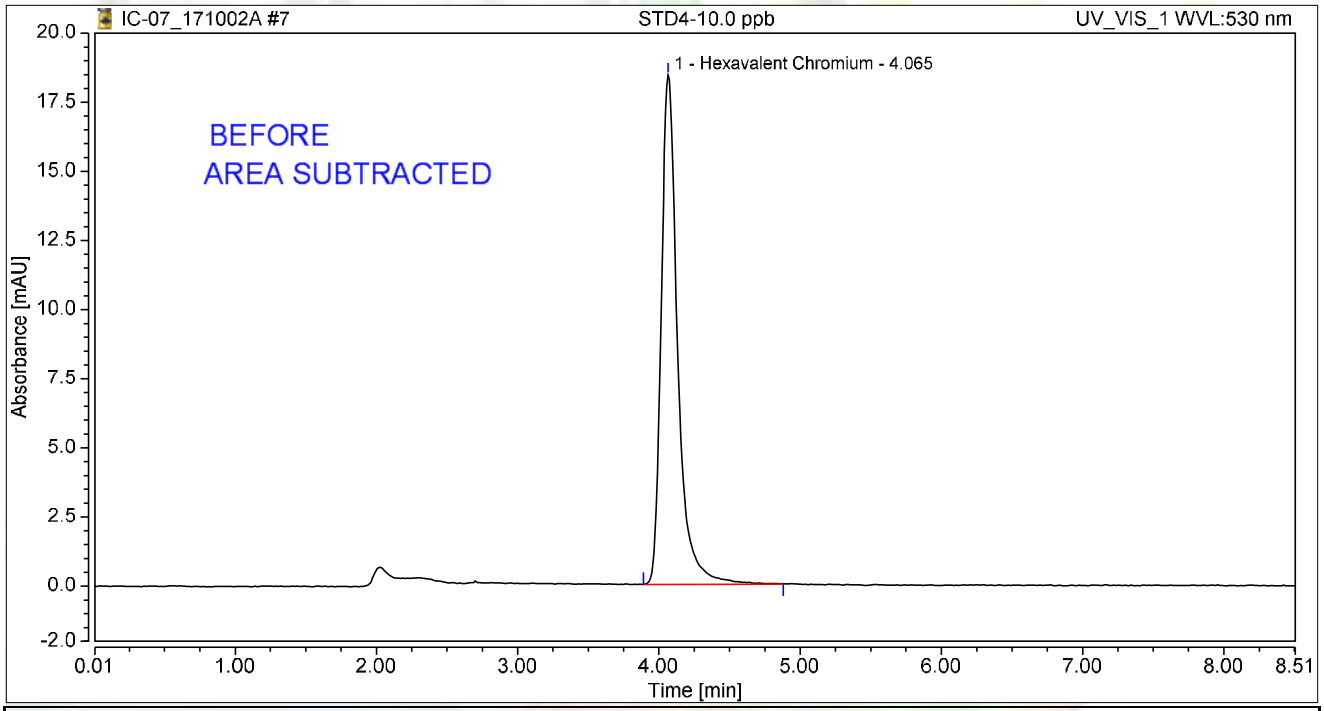
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.489	18.435	100.00	100.00	9.8947
Total:			**2.489**	**18.435**	**100.00**	**100.00**	

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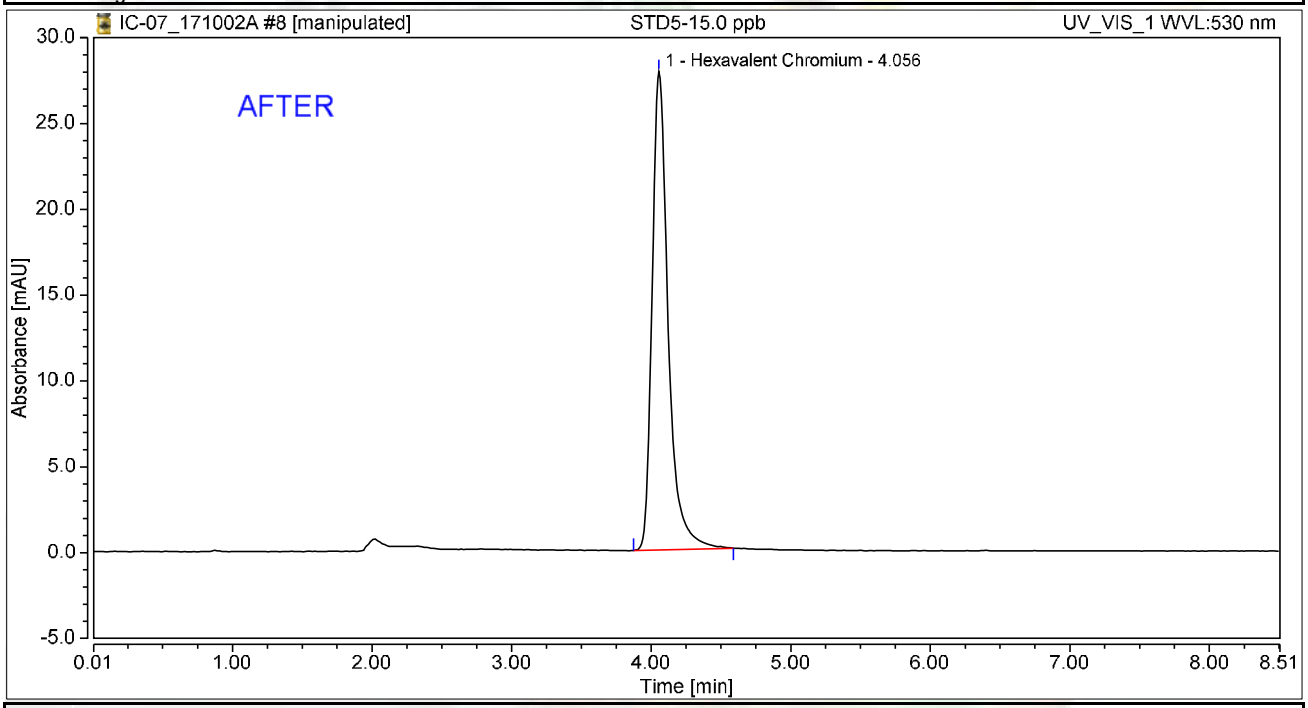
Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.718	27.856	100.00	100.00	15.0414
Total:			**3.718**	**27.856**	**100.00**	**100.00**	

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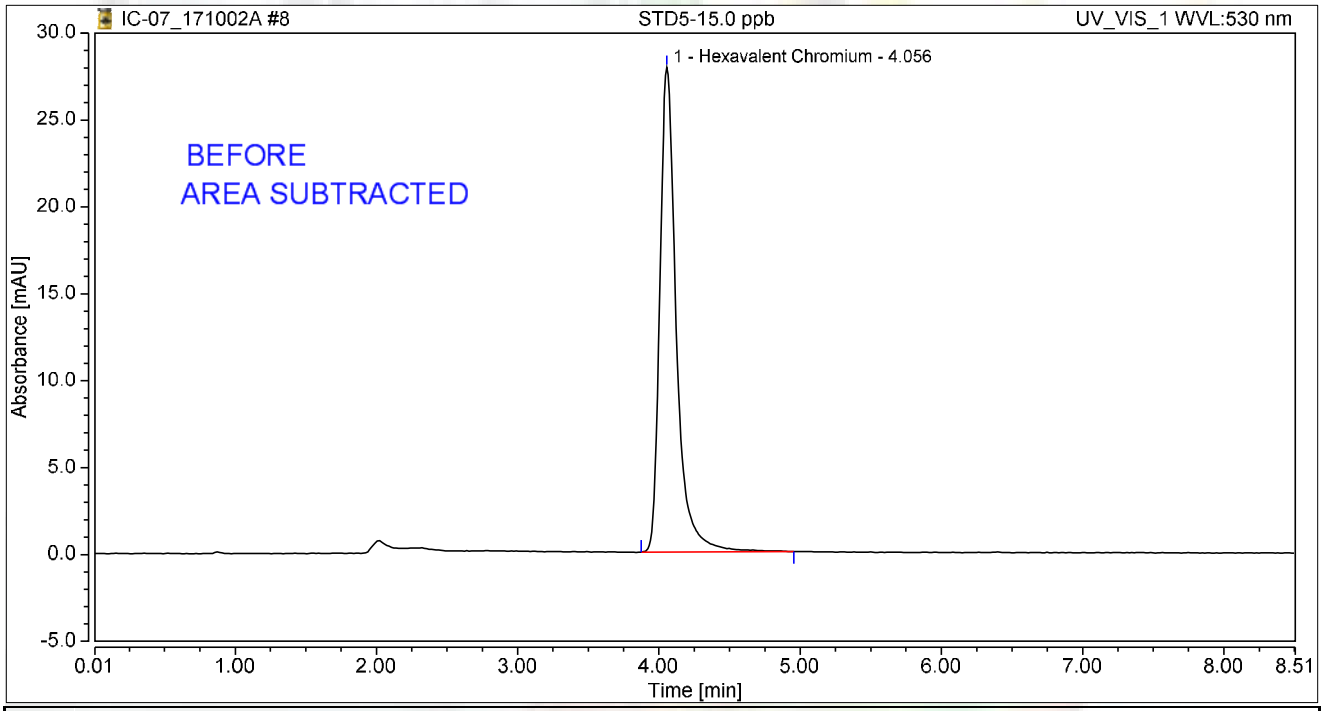
Reviewed by: 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.775	27.882	100.00	100.00	15.0084
Total:			**3.775**	**27.882**	**100.00**	**100.00**	

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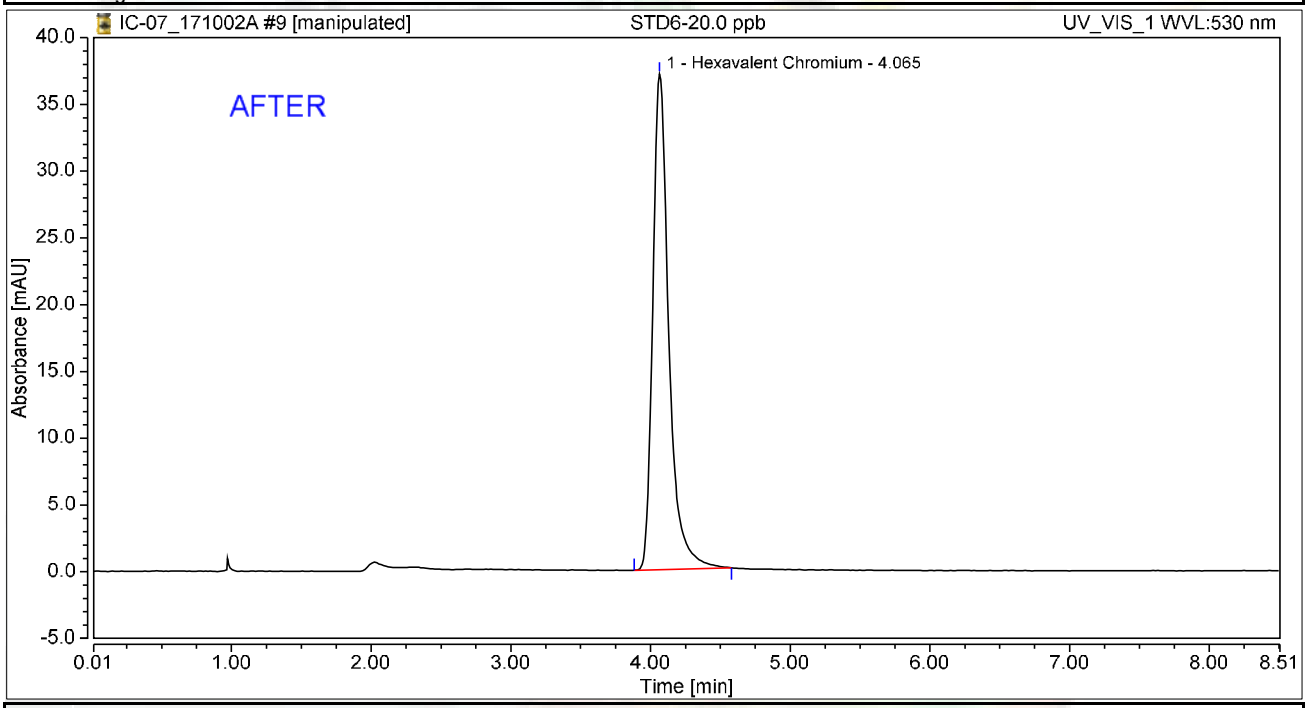
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	4.942	37.101	100.00	100.00	19.9913
Total:			**4.942**	**37.101**	**100.00**	**100.00**	

rba 10/7/2017

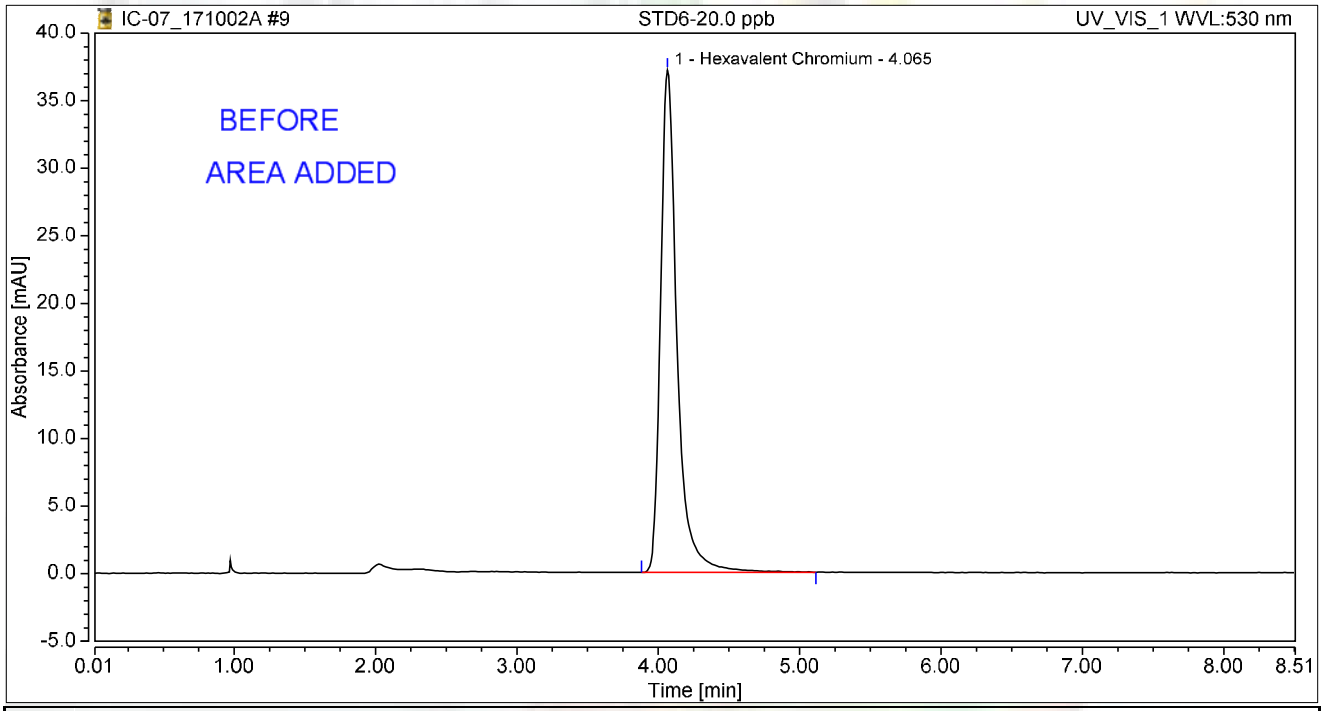
Reviewed by: 10/9/2017

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	5.043	37.149	100.00	100.00	20.0500
Total:			**5.043**	**37.149**	**100.00**	**100.00**	

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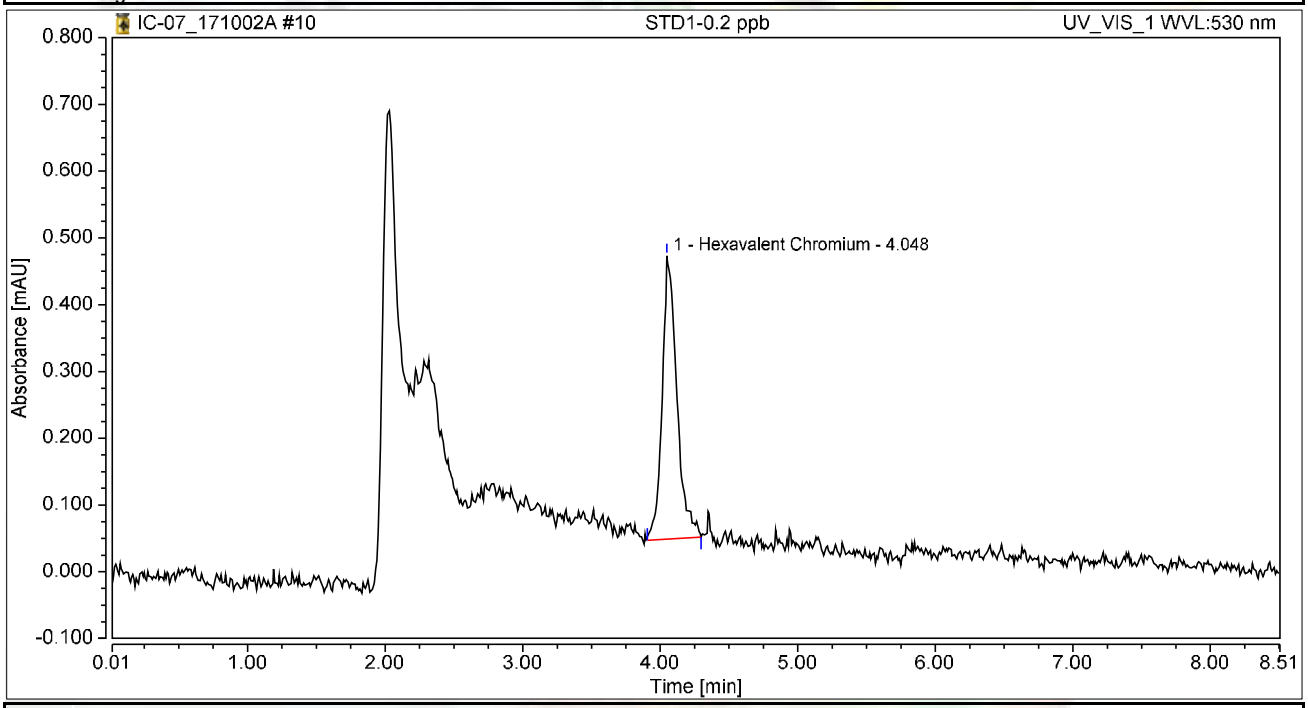
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



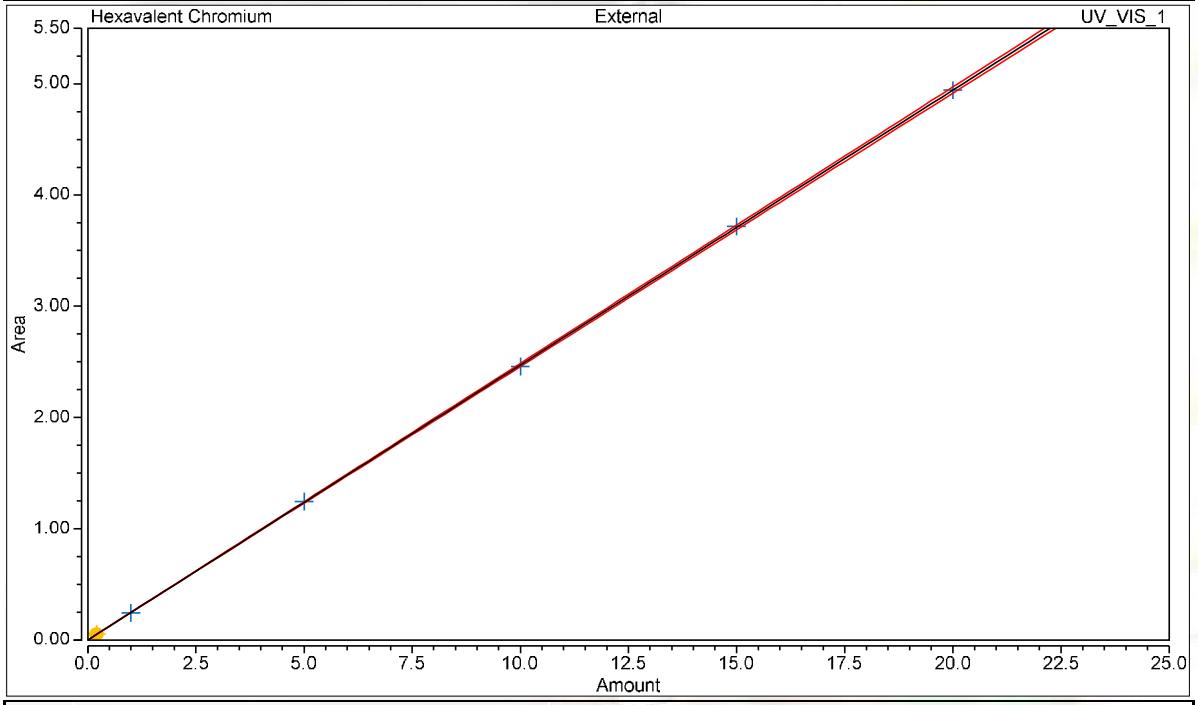
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.052	0.424	100.00	100.00	0.2120
Total:			**0.052**	**0.424**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2472
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

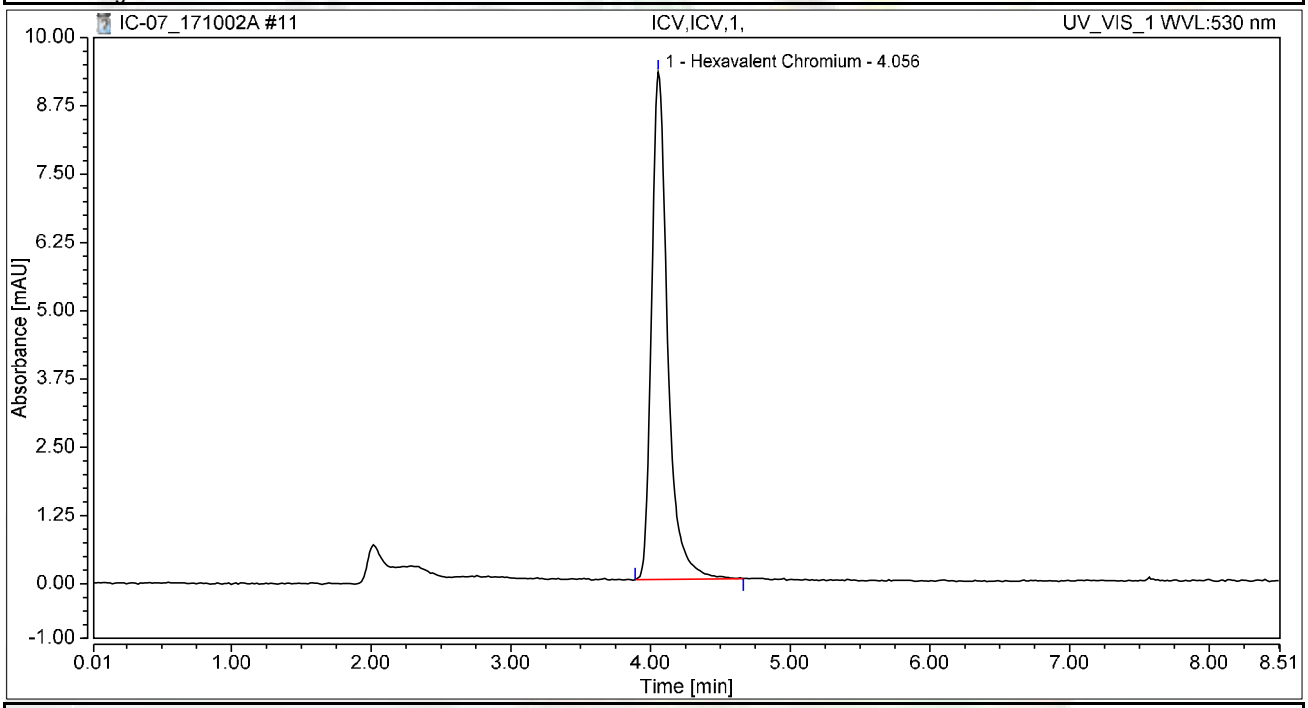
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
5	STD2-1.0 ppb	02	1.0000	0.2415	0.242	1.809
6	STD3-5.0 ppb	03	5.0000	1.2450	1.245	9.303
7	STD4-10.0 ppb	04	10.0000	2.4569	2.457	18.420
8	STD5-15.0 ppb	05	15.0000	3.7182	3.718	27.856
9	STD6-20.0 ppb	06	20.0000	4.9418	4.942	37.101
10	STD1-0.2 ppb	01	0.2000	0.0524	0.052	0.424

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

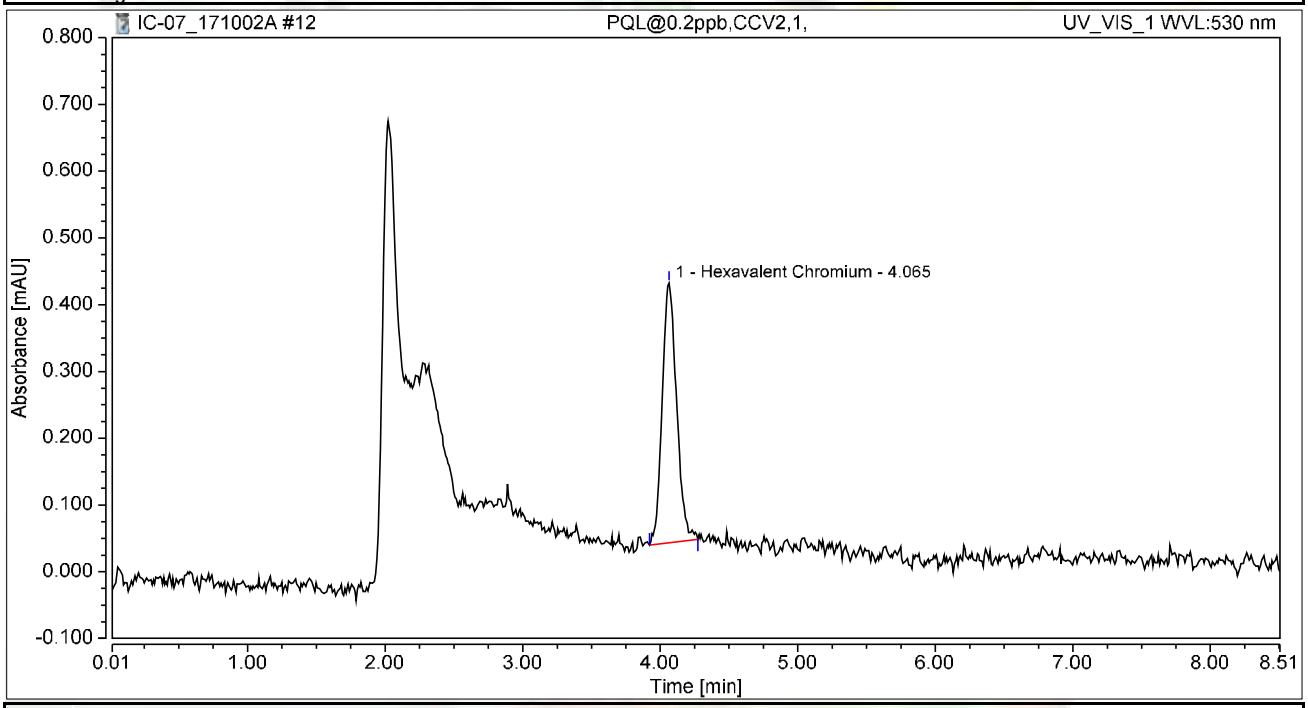
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.244	9.289	100.00	100.00	5.0342
Total:			**1.244**	**9.289**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

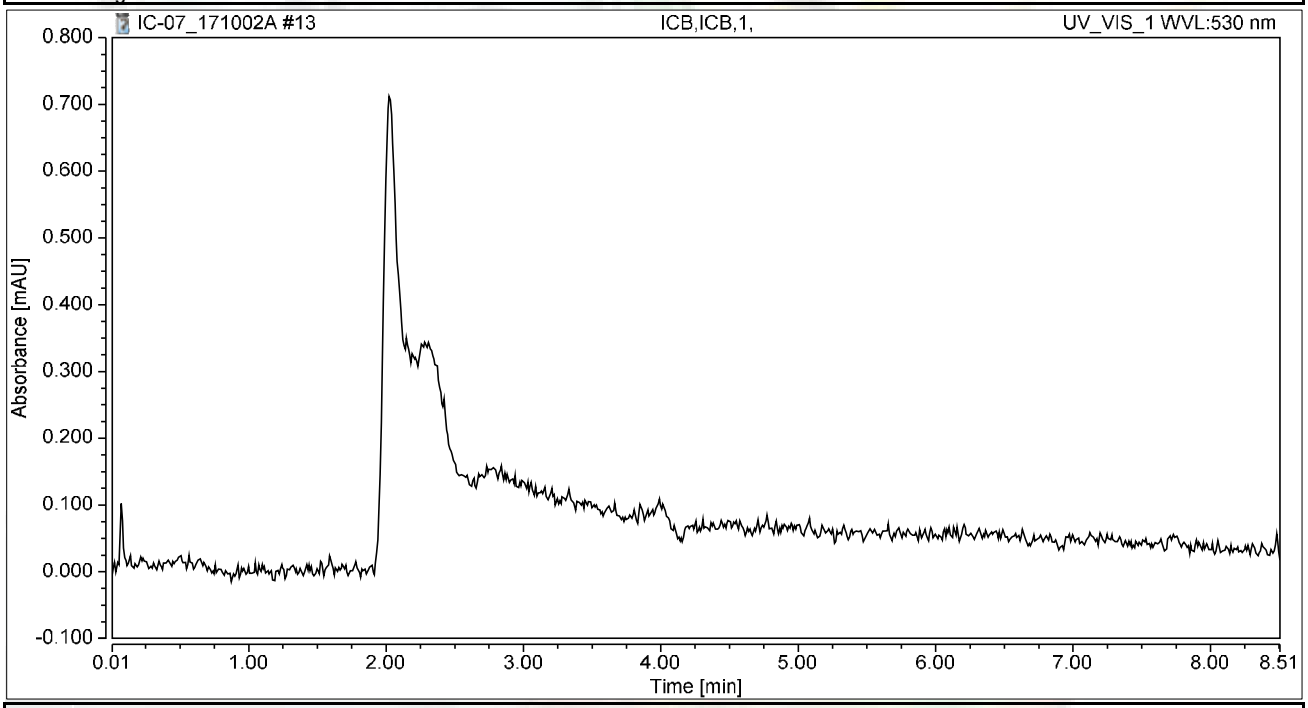
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.047	0.389	100.00	100.00	0.1915
Total:			**0.047**	**0.389**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**02/Oct/17 11:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 171025A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 9:58 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	10/02/17 10:09 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	10/02/17 10:18 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:28 AM	Not Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:37 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:47 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 10:56 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:06 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:15 AM	Reported
10	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	10/02/17 11:24 AM	Reported
11	BLANK	BLANK	1	Hexavalent Chromium	10/25/17 3:45 AM	Not Reported
12	BLANK	BLANK	1	Hexavalent Chromium	10/25/17 3:56 AM	Not Reported
13	CCV-1	CCV	1	Hexavalent Chromium	10/25/17 4:05 AM	Reported
14	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	10/25/17 4:15 AM	Reported
15	CCB-1	CCB	1	Hexavalent Chromium	10/25/17 4:24 AM	Reported
16	MB-R118829	MBLK	1	Hexavalent Chromium	10/25/17 4:34 AM	Reported
17	LCS-R118829	LCS	1	Hexavalent Chromium	10/25/17 4:43 AM	Reported
18	N026664-001A	SAMP	100	Hexavalent Chromium	10/25/17 4:53 AM	Not Reported
19	N026664-009A	SAMP	25	Hexavalent Chromium	10/25/17 5:02 AM	Reported
20	N026664-009AMS	MS	25	Hexavalent Chromium	10/25/17 5:12 AM	Reported
21	N026664-002A	SAMP	5	Hexavalent Chromium	10/25/17 5:21 AM	Reported
22	N026664-003A	SAMP	1	Hexavalent Chromium	10/25/17 5:31 AM	Not Reported
23	N026664-004A	SAMP	1	Hexavalent Chromium	10/25/17 5:40 AM	Not Reported
24	N026664-001A	SAMP	1	Hexavalent Chromium	10/25/17 5:49 AM	Reported
25	N026664-005A	SAMP	1	Hexavalent Chromium	10/25/17 5:59 AM	Reported
26	CCV-2	CCV1	1	Hexavalent Chromium	10/25/17 6:08 AM	Reported
27	CCB-2	CCB	1	Hexavalent Chromium	10/25/17 6:18 AM	Reported
28	N026664-007A	SAMP	1	Hexavalent Chromium	10/25/17 6:27 AM	Reported
29	N026664-008A	SAMP	1	Hexavalent Chromium	10/25/17 6:37 AM	Not Reported
30	N026664-006A	SAMP	5	Hexavalent Chromium	10/25/17 6:46 AM	Reported
31	N026664-001ADUP	DUP	1	Hexavalent Chromium	10/25/17 6:56 AM	Reported
32	N026664-001AMS	MS	1	Hexavalent Chromium	10/25/17 7:05 AM	Reported
33	N026664-009A	SAMP	5	Hexavalent Chromium	10/25/17 7:15 AM	Not Reported
34	N026664-009AMS	MS	5	Hexavalent Chromium	10/25/17 7:24 AM	Not Reported
35	N026664-005AREP	DUP	1	Hexavalent Chromium	10/25/17 7:34 AM	Reported
36	N026664-005AMS	MS	1	Hexavalent Chromium	10/25/17 7:43 AM	Reported
37	N026664-009AREP	DUP	25	Hexavalent Chromium	10/25/17 7:52 AM	Reported
38	CCV-3	CCV	1	Hexavalent Chromium	10/25/17 8:02 AM	Reported
39	CCB-3	CCB	1	Hexavalent Chromium	10/25/17 8:11 AM	Reported
40	N026664-011AMS	MS	5	Hexavalent Chromium	10/25/17 8:21 AM	Not Reported
41	N026664-011A	SAMP	5	Hexavalent Chromium	10/25/17 8:30 AM	Not Reported
42	N026664-007AREP	DUP	1	Hexavalent Chromium	10/25/17 8:40 AM	Reported

INJECTION LOG: 171025A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N026664-007AMS	MS	1	Hexavalent Chromium	10/25/17 8:49 AM	Reported
44	N026664-011A	SAMP	25	Hexavalent Chromium	10/25/17 8:59 AM	Reported
45	N026664-011AMS	MS	25	Hexavalent Chromium	10/25/17 9:08 AM	Reported
46	N026664-010A	SAMP	25	Hexavalent Chromium	10/25/17 9:18 AM	Not Reported
47	N026664-010AMS	MS	25	Hexavalent Chromium	10/25/17 9:27 AM	Not Reported
48	N026664-012A	SAMP	25	Hexavalent Chromium	10/25/17 9:36 AM	Not Reported
49	N026664-012AMS	MS	25	Hexavalent Chromium	10/25/17 9:46 AM	Not Reported
50	CCV-4	CCV1	1	Hexavalent Chromium	10/25/17 9:55 AM	Reported
51	CCB-4	CCB	1	Hexavalent Chromium	10/25/17 10:05 AM	Reported
52	N026664-011AREP	DUP	25	Hexavalent Chromium	10/25/17 10:14 AM	Reported
53	N026664-008A	SAMP	10	Hexavalent Chromium	10/25/17 10:24 AM	Reported
54	N026664-008AREP	DUP	10	Hexavalent Chromium	10/25/17 10:33 AM	Reported
55	N026664-008AMS	MS	10	Hexavalent Chromium	10/25/17 10:43 AM	Reported
56	N026664-003A	SAMP	5	Hexavalent Chromium	10/25/17 10:52 AM	Reported
57	N026664-003AREP	DUP	5	Hexavalent Chromium	10/25/17 11:02 AM	Reported
58	N026664-004A	SAMP	5	Hexavalent Chromium	10/25/17 11:11 AM	Reported
59	N026664-004AREP	DUP	5	Hexavalent Chromium	10/25/17 11:21 AM	Reported
60	N026664-012A	SAMP	125	Hexavalent Chromium	10/25/17 11:30 AM	Not Reported
61	N026664-012A	SAMP	125	Hexavalent Chromium	10/25/17 11:40 AM	Reported
62	CCV-5	CCV	1	Hexavalent Chromium	10/25/17 11:52 AM	Reported
63	CCB-5	CCB	1	Hexavalent Chromium	10/25/17 12:01 PM	Reported
64	N026664-012AREP	DUP	125	Hexavalent Chromium	10/25/17 12:10 PM	Reported
65	N026664-006AREP	DUP	5	Hexavalent Chromium	10/25/17 12:20 PM	Not Reported
66	N026664-010A	SAMP	125	Hexavalent Chromium	10/25/17 12:29 PM	Reported
67	N026664-010AREP	DUP	125	Hexavalent Chromium	10/25/17 12:39 PM	Reported
68	N026664-002AREP	DUP	5	Hexavalent Chromium	10/25/17 12:48 PM	Reported
69	N026664-012A	SAMP	625	Hexavalent Chromium	10/25/17 12:58 PM	Not Reported
70	N026664-006AREP	DUP	5	Hexavalent Chromium	10/25/17 1:07 PM	Reported
71	N026664-012AREP	REP	625	Hexavalent Chromium	10/25/17 1:17 PM	Not Reported
72	N026664-010A	SAMP	625	Hexavalent Chromium	10/25/17 1:26 PM	Not Reported
73	N026664-010AREP	REP	625	Hexavalent Chromium	10/25/17 1:36 PM	Not Reported
74	CCV-6	CCV1	1	Hexavalent Chromium	10/25/17 1:45 PM	Reported
75	CCB-6	CCB	1	Hexavalent Chromium	10/25/17 1:55 PM	Reported
76	N026664-012AMS	MS	125	Hexavalent Chromium	10/25/17 2:04 PM	Reported
77	N026664-010AMS	MS	125	Hexavalent Chromium	10/25/17 2:13 PM	Reported
78	N026664-003AMS	MS	5	Hexavalent Chromium	10/25/17 2:23 PM	Reported
79	N026664-004AMS	MS	5	Hexavalent Chromium	10/25/17 2:32 PM	Reported
80	N026664-006AMS	MS	5	Hexavalent Chromium	10/25/17 2:42 PM	Reported
81	N026664-002AMS	MS	5	Hexavalent Chromium	10/25/17 2:51 PM	Reported
82	N026665-001A	SAMP	20	Hexavalent Chromium	10/25/17 3:01 PM	Not Reported
83	N026662-001A	SAMP	100	Hexavalent Chromium	10/25/17 3:01 PM	Not Reported
84	N026662-001AMS	MS	100	Hexavalent Chromium	10/25/17 3:12 PM	Not Reported

INJECTION LOG: 171025A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	N026662-001AMSD	MSD	100	Hexavalent Chromium	10/25/17 3:21 PM	Not Reported
86	CCV-7	CCV	1	Hexavalent Chromium	10/25/17 3:31 PM	Reported
87	CCB-7	CCB	1	Hexavalent Chromium	10/25/17 3:40 PM	Reported
88	N026662-002A	SAMP	1	Hexavalent Chromium	10/25/17 3:50 PM	Reported
89	N026662-002AMS	MS	1	Hexavalent Chromium	10/25/17 3:59 PM	Reported
90	N026665-001A	SAMP	20	Hexavalent Chromium	10/25/17 4:08 PM	Reported
91	CCV-8	CCV1	1	Hexavalent Chromium	10/25/17 5:19 PM	Reported
92	CCB-8	CCB	1	Hexavalent Chromium	10/25/17 5:31 PM	Reported
93	N026662-001A	SAMP	20	Hexavalent Chromium	10/25/17 6:25 PM	Reported
94	N026662-001AMS	MS	20	Hexavalent Chromium	10/25/17 6:37 PM	Reported
95	N026662-001AMSD	MSD	20	Hexavalent Chromium	10/25/17 6:46 PM	Reported
96	CCV-9	CCV	1	Hexavalent Chromium	10/25/17 6:55 PM	Reported
97	CCB-9	CCB	1	Hexavalent Chromium	10/25/17 7:05 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_171025A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2017**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal2**	*Updated On:*	**26/Oct/17 08:18:47**
No. of Injections:	**100**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		10/02/2017 09:58	Finished	BLANK
2	BLANK	2	1000	Unknown		10/02/2017 10:09	Finished	BLANK
3	iBLANK	3	1000	Unknown		10/02/2017 10:18	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Unknown		10/02/2017 10:28	Finished	0.2 ppb, IWST-171002A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	10/02/2017 10:37	Finished	1.0 ppb, IWST-171002A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	10/02/2017 10:47	Finished	5.0 ppb, IWST-171002A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	10/02/2017 10:56	Finished	10 ppb, IWST-171002A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	10/02/2017 11:06	Finished	15 ppb, IWST-171002A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	10/02/2017 11:15	Finished	20 ppb, IWST-171002A
10	STD1-0.2 ppb	10	1000	Calibration Standard	01	10/02/2017 11:24	Finished	0.2 ppb, IWST-171002A
11	BLANK	1	1000	Unknown		10/25/2017 03:45	Finished	BLANK
12	BLANK	2	1000	Unknown		10/25/2017 03:56	Finished	BLANK
13	CCV-1,CCV,1,	3	1000	Unknown		10/25/2017 04:05	Finished	CCV @5ppb, IWST-171002A
14	PQL@0.2ppb,CCV2,1	4	1000	Unknown		10/25/2017 04:15	Finished	PQL @ 0.2ppb
15	CCB-1,CCB,1,	5	1000	Unknown		10/25/2017 04:24	Finished	CCB R171012B
16	MB-H2O,MBLK,1	6	1000	Unknown		10/25/2017 04:34	Finished	MB R171012B
17	LCS-H2O,LCS,1	7	1000	Unknown		10/25/2017 04:43	Finished	LCS, IWST-171002B
18	N026664-001A,SAMF	8	1000	Unknown		10/25/2017 04:53	Finished	SAMP,0.1>10mL
19	N026664-009A,SAMF	9	1000	Unknown		10/25/2017 05:02	Finished	SAMP,0.4>10mL
20	N026664-009AMS,MS	10	1000	Unknown		10/25/2017 05:12	Finished	MS (1ppb), IWST-171002B,0.4
21	N026664-002A,SAMF	11	1000	Unknown		10/25/2017 05:21	Finished	SAMP,2>10mL
22	N026664-003A,SAMF	12	1000	Unknown		10/25/2017 05:31	Finished	SAMP,10mL
23	N026664-004A,SAMF	13	1000	Unknown		10/25/2017 05:40	Finished	SAMP,10mL
24	N026664-001A,SAMF	14	1000	Unknown		10/25/2017 05:49	Finished	SAMP,10mL
25	N026664-005A,SAMF	15	1000	Unknown		10/25/2017 05:59	Finished	SAMP,10mL
26	CCV-2,CCV1,1,	16	1000	Unknown		10/25/2017 06:08	Finished	CCV @10ppb, IWST-171002A
27	CCB-2,CCB,1,	17	1000	Unknown		10/25/2017 06:18	Finished	CCB R171012B
28	N026664-007A,SAMF	18	1000	Unknown		10/25/2017 06:27	Finished	SAMP,10mL
29	N026664-008A,SAMF	19	1000	Unknown		10/25/2017 06:37	Finished	SAMP,10mL
30	N026664-006A,SAMF	20	1000	Unknown		10/25/2017 06:46	Finished	SAMP,2>10mL
31	N026664-001ADUP,D	21	1000	Unknown		10/25/2017 06:56	Finished	DUP,10mL
32	N026664-001AMS,MS	22	1000	Unknown		10/25/2017 07:05	Finished	MS (5ppb), IWST-171002B,10
33	N026664-009A,SAMF	23	1000	Unknown		10/25/2017 07:15	Finished	SAMP,2>10mL
34	N026664-009AMS,MS	24	1000	Unknown		10/25/2017 07:24	Finished	MS (1ppb), IWST-171002B,2>1
35	N026664-005AREP,D	25	1000	Unknown		10/25/2017 07:34	Finished	REP,10mL
36	N026664-005AMS,MS	26	1000	Unknown		10/25/2017 07:43	Finished	MS (5ppb), IWST-171002B,10
37	N026664-009AREP,D	27	1000	Unknown		10/25/2017 07:52	Finished	REP,0.4>10mL
38	CCV-3,CCV,1,	28	1000	Unknown		10/25/2017 08:02	Finished	CCV @5ppb, IWST-171002A
39	CCB-3,CCB,1,	29	1000	Unknown		10/25/2017 08:11	Finished	CCB R171012B
40	N026664-011AMS,MS	30	1000	Unknown		10/25/2017 08:21	Finished	MS (1ppb), IWST-171002B,2>1
41	N026664-011A,SAMF	31	1000	Unknown		10/25/2017 08:30	Finished	SAMP,2>10mL
42	N026664-007AREP,D	32	1000	Unknown		10/25/2017 08:40	Finished	REP,10mL
43	N026664-007AMS,MS	33	1000	Unknown		10/25/2017 08:49	Finished	MS (5ppb), IWST-171002B,10
44	N026664-011A,SAMF	34	1000	Unknown		10/25/2017 08:59	Finished	SAMP,0.4>10mL
45	N026664-011AMS,MS	35	1000	Unknown		10/25/2017 09:08	Finished	MS (1ppb), IWST-171002B,0.4
46	N026664-010A,SAMF	36	1000	Unknown		10/25/2017 09:18	Finished	SAMP,0.4>10mL
47	N026664-010AMS,MS	37	1000	Unknown		10/25/2017 09:27	Finished	MS (1ppb), IWST-171002B,0.4
48	N026664-012A,SAMF	38	1000	Unknown		10/25/2017 09:36	Finished	SAMP,0.4>10mL
49	N026664-012AMS,MS	39	1000	Unknown		10/25/2017 09:46	Finished	MS (1ppb), IWST-171002B,0.4
50	CCV-4,CCV1,1,	40	1000	Unknown		10/25/2017 09:55	Finished	CCV @10ppb, IWST-171002A
51	CCB-4,CCB,1,	41	1000	Unknown		10/25/2017 10:05	Finished	CCB R171012B
52	N026664-011AREP,D	42	1000	Unknown		10/25/2017 10:14	Finished	REP,0.4>10mL
53	N026664-008A,SAMF	43	1000	Unknown		10/25/2017 10:24	Finished	SAMP,1>10mL
54	N026664-008AREP,D	44	1000	Unknown		10/25/2017 10:33	Finished	REP,1>10mL
55	N026664-008AMS,MS	45	1000	Unknown		10/25/2017 10:43	Finished	MS (5ppb), IWST-171002B,1>1
56	N026664-003A,SAMF	46	1000	Unknown		10/25/2017 10:52	Finished	SAMP,2>10mL
57	N026664-003AREP,D	47	1000	Unknown		10/25/2017 11:02	Finished	REP,2>10mL
58	N026664-004A,SAMF	48	1000	Unknown		10/25/2017 11:11	Finished	SAMP,2>10mL
59	N026664-004AREP,D	49	1000	Unknown		10/25/2017 11:21	Finished	REP,2>10mL
60	N026664-012A,SAMF	50	1000	Unknown		10/25/2017 11:30	Finished	SAMP,0.08>10mL

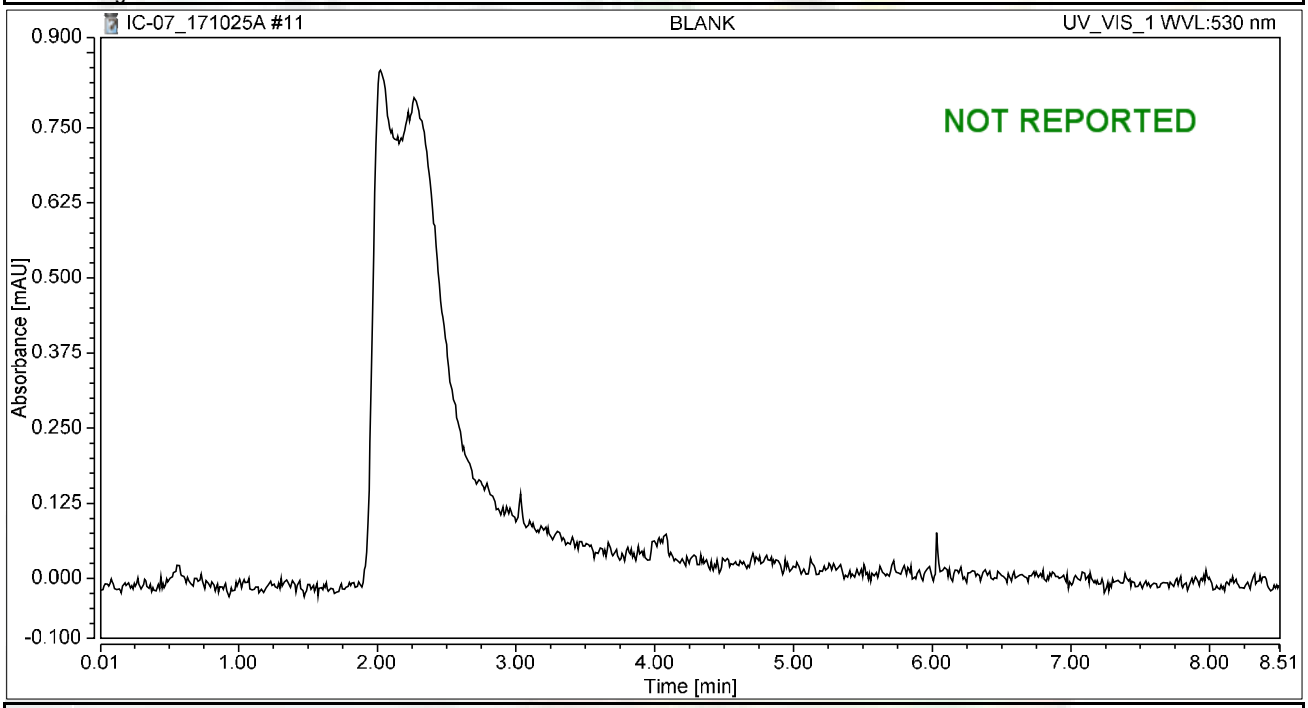
61	N026664-012A,SAMP	1	1000	Unknown		10/25/2017 11:40	Finished	SAMP,0.08>10mL
62	CCV-5,CCV,1,	2	1000	Unknown		10/25/2017 11:52	Finished	CCV @5ppb, IWST-171002A
63	CCB-5,CCB,1,	3	1000	Unknown		10/25/2017 12:01	Finished	CCB R171012B
64	N026664-012AREP,R	4	1000	Unknown		10/25/2017 12:10	Finished	CCB R171012B
65	N026664-006AREP,D	5	1000	Unknown		10/25/2017 12:20	Finished	REP,2>10mL
66	N026664-010A,SAMP	6	1000	Unknown		10/25/2017 12:29	Finished	SAMP,0.08>10mL
67	N026664-010AREP,R	7	1000	Unknown		10/25/2017 12:39	Finished	REP,0.08>10mL
68	N026664-002AREP,D	8	1000	Unknown		10/25/2017 12:48	Finished	REP,2>10mL
69	N026664-012A,SAMP	9	1000	Unknown		10/25/2017 12:58	Finished	SAMP,0.016>10mL
70	N026664-006AREP,D	10	1000	Unknown		10/25/2017 13:07	Finished	REP,2>10mL
71	N026664-012AREP,R	11	1000	Unknown		10/25/2017 13:17	Finished	REP,0.016>10mL
72	N026664-010A,SAMP	12	1000	Unknown		10/25/2017 13:26	Finished	SAMP,0.016>10mL
73	N026664-010AREP,R	13	1000	Unknown		10/25/2017 13:36	Finished	REP,0.016>10mL
74	CCV-6,CCV1,1,	14	1000	Unknown		10/25/2017 13:45	Finished	CCV @10ppb, IWST-171002A
75	CCB-6,CCB,1,	15	1000	Unknown		10/25/2017 13:55	Finished	CCB R171012B
76	N026664-012AMS,MS	16	1000	Unknown		10/25/2017 14:04	Finished	MS (1ppb), IWST-171002B,0.0
77	N026664-010AMS,MS	17	1000	Unknown		10/25/2017 14:13	Finished	MS (1ppb), IWST-171002B,0.0
78	N026664-003AMS,MS	18	1000	Unknown		10/25/2017 14:23	Finished	MS (5ppb), IWST-171002B,2>1
79	N026664-004AMS,MS	19	1000	Unknown		10/25/2017 14:32	Finished	MS (1ppb), IWST-171002B,2>1
80	N026664-006AMS,MS	20	1000	Unknown		10/25/2017 14:42	Finished	MS (5ppb), IWST-171002B,2>1
81	N026664-002AMS,MS	21	1000	Unknown		10/25/2017 14:51	Finished	MS (5ppb), IWST-171002B,2>1
82	N026665-001A,SAMP	22	1000	Unknown		10/25/2017 15:01	Interrupted	SAMP,0.5>10mL
83	N026662-001A,SAMP	23	1000	Unknown		10/25/2017 15:01	Finished	SAMP,0.1>10mL
84	N026662-001AMS,MS	24	1000	Unknown		10/25/2017 15:12	Finished	MS (5ppb), IWST-171002B,0.1
85	N026662-001AMSD,M	25	1000	Unknown		10/25/2017 15:21	Finished	MSD (5ppb), IWST-171002B,0.
86	CCV-7,CCV,1,	26	1000	Unknown		10/25/2017 15:31	Finished	CCV @5ppb, IWST-171002A
87	CCB-7,CCB,1,	27	1000	Unknown		10/25/2017 15:40	Finished	CCB R171012B
88	N026662-002A,SAMP	28	1000	Unknown		10/25/2017 15:50	Finished	SAMP,10mL
89	N026662-002AMS,MS	29	1000	Unknown		10/25/2017 15:59	Finished	MS (1ppb), IWST-171002B,10
90	N026665-001A,SAMP	30	1000	Unknown		10/25/2017 16:08	Finished	SAMP,0.5>10mL
91	CCV-8,CCV1,1,	31	1000	Unknown		10/25/2017 17:19	Finished	CCV @10ppb, IWST-171002A
92	CCB-8,CCB,1,	32	1000	Unknown		10/25/2017 17:31	Finished	CCB R171012B
93	N026662-001A,SAMP	34	1000	Unknown		10/25/2017 18:25	Finished	SAMP,0.5>10mL
94	N026662-001AMS,MS	35	1000	Unknown		10/25/2017 18:37	Finished	MS (5ppb), IWST-171002B,0.5
95	N026662-001AMSD,M	36	1000	Unknown		10/25/2017 18:46	Finished	MSD (5ppb), IWST-171002B,0.
96	CCV-9,CCV,1,	37	1000	Unknown		10/25/2017 18:55	Finished	CCV @5ppb, IWST-171002A
97	CCB-9,CCB,1,	38	1000	Unknown		10/25/2017 19:05	Finished	CCB R171012B
98	SHUTDOWN	39	1000	Unknown		10/25/2017 19:14	Finished	
99	Eluent: R171024A	40	1000	Unknown		n.a.	Finished	Eluent
100	PCR: R171024B	41	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 03:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

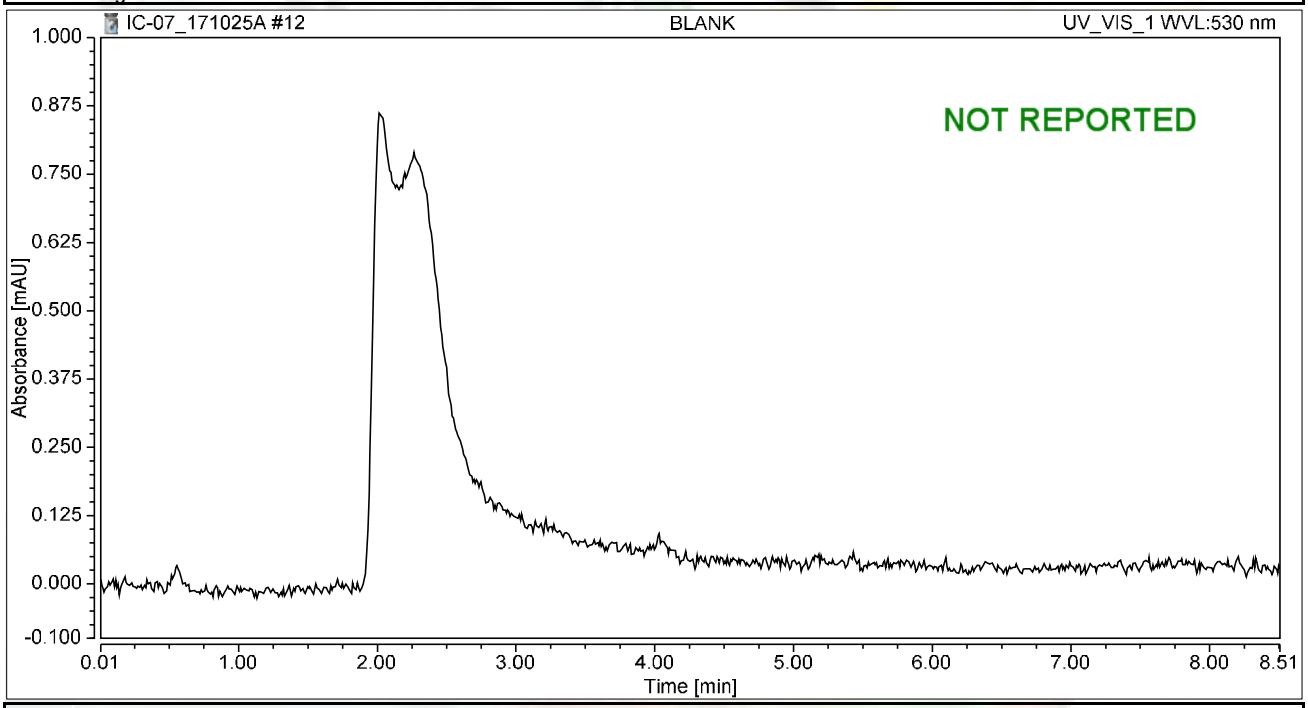
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 03:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

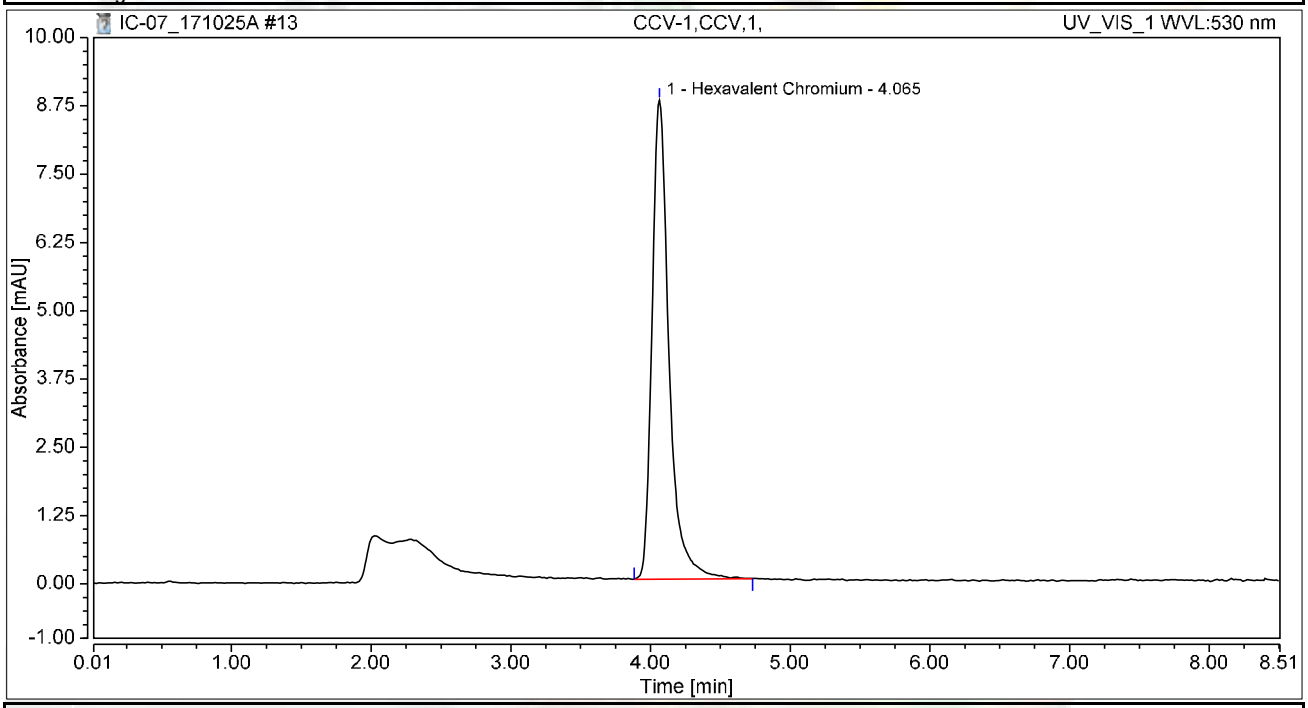
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

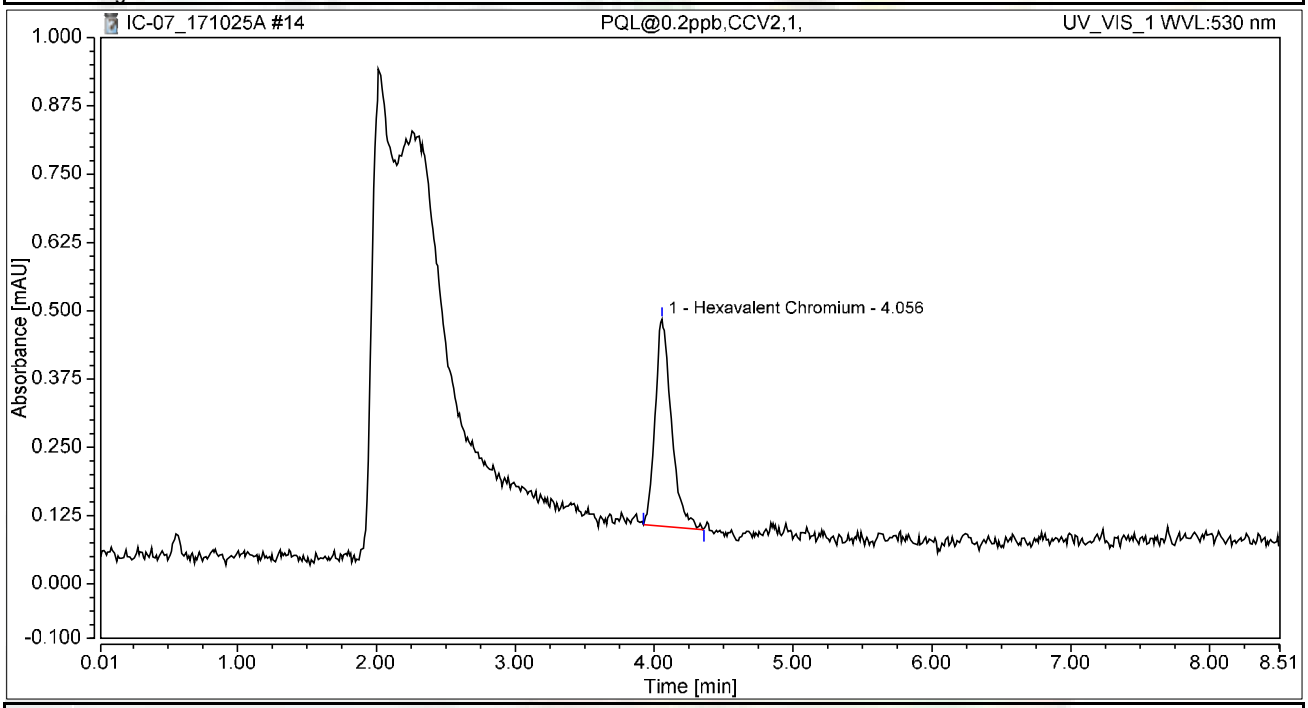
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.239	8.769	100.00	100.00	5.0128
Total:			**1.239**	**8.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

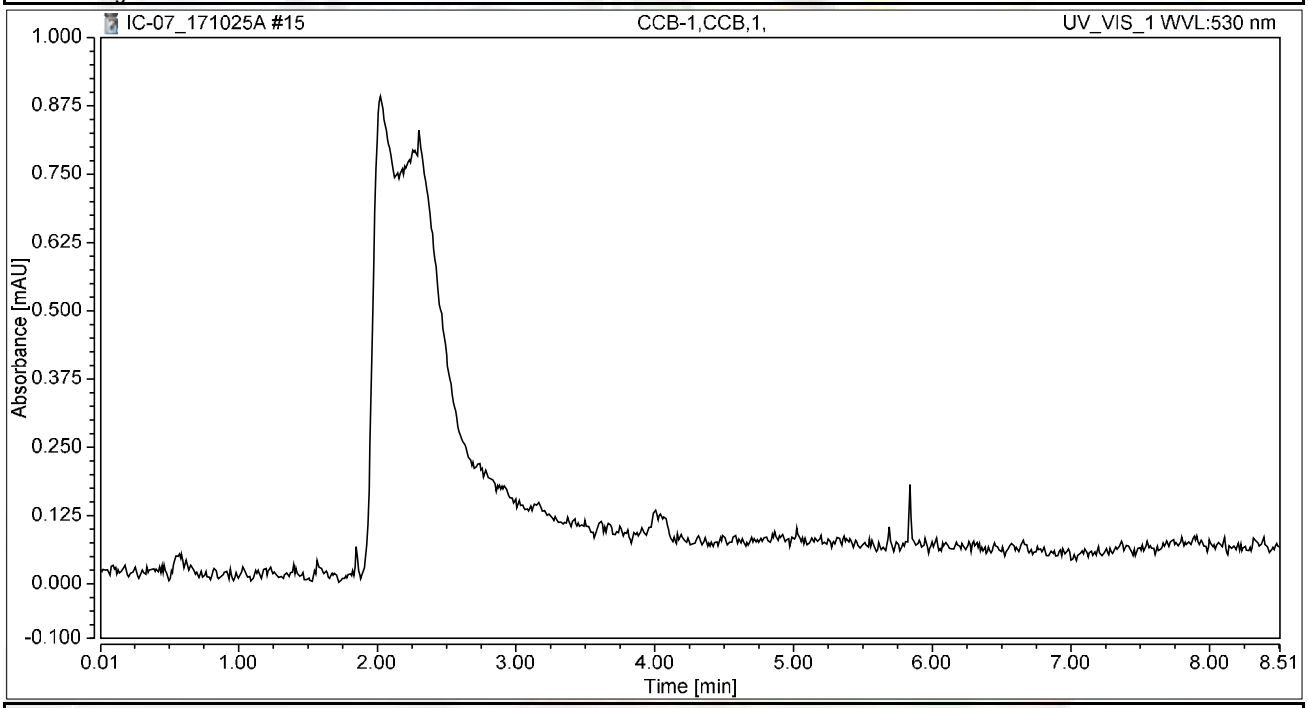
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.052	0.379	100.00	100.00	0.2090
Total:			**0.052**	**0.379**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

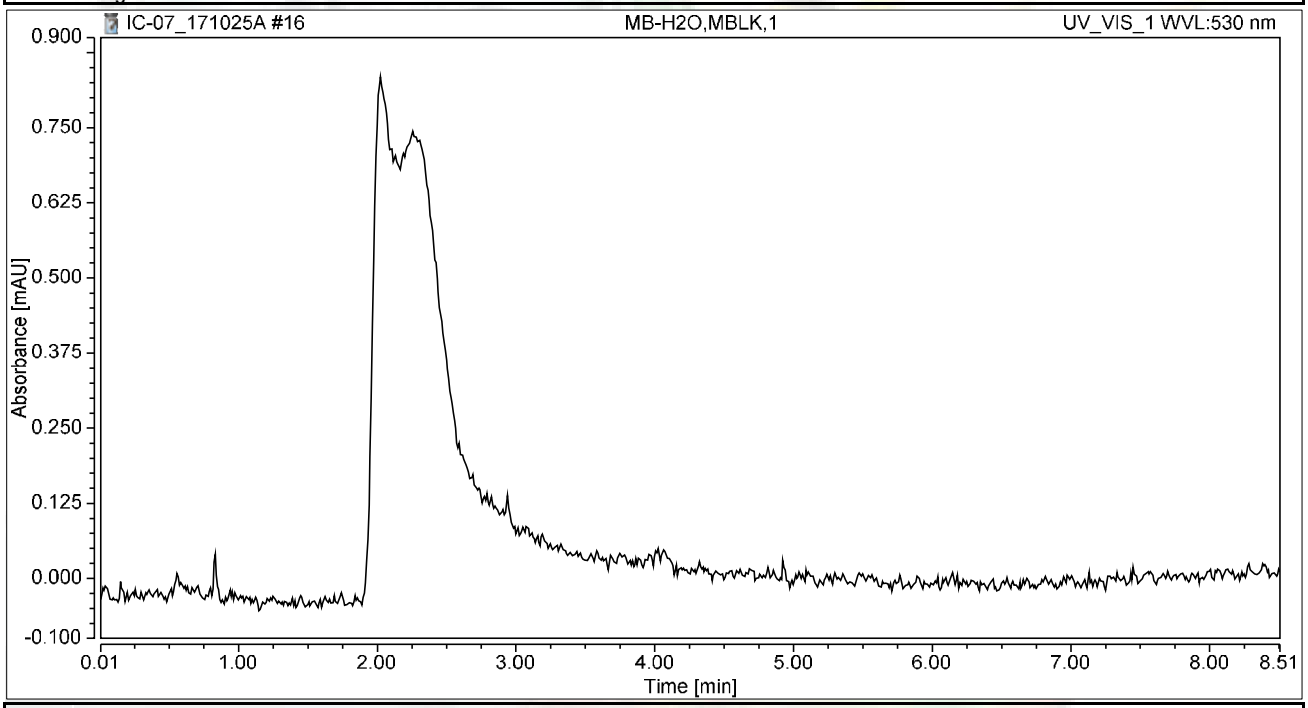
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

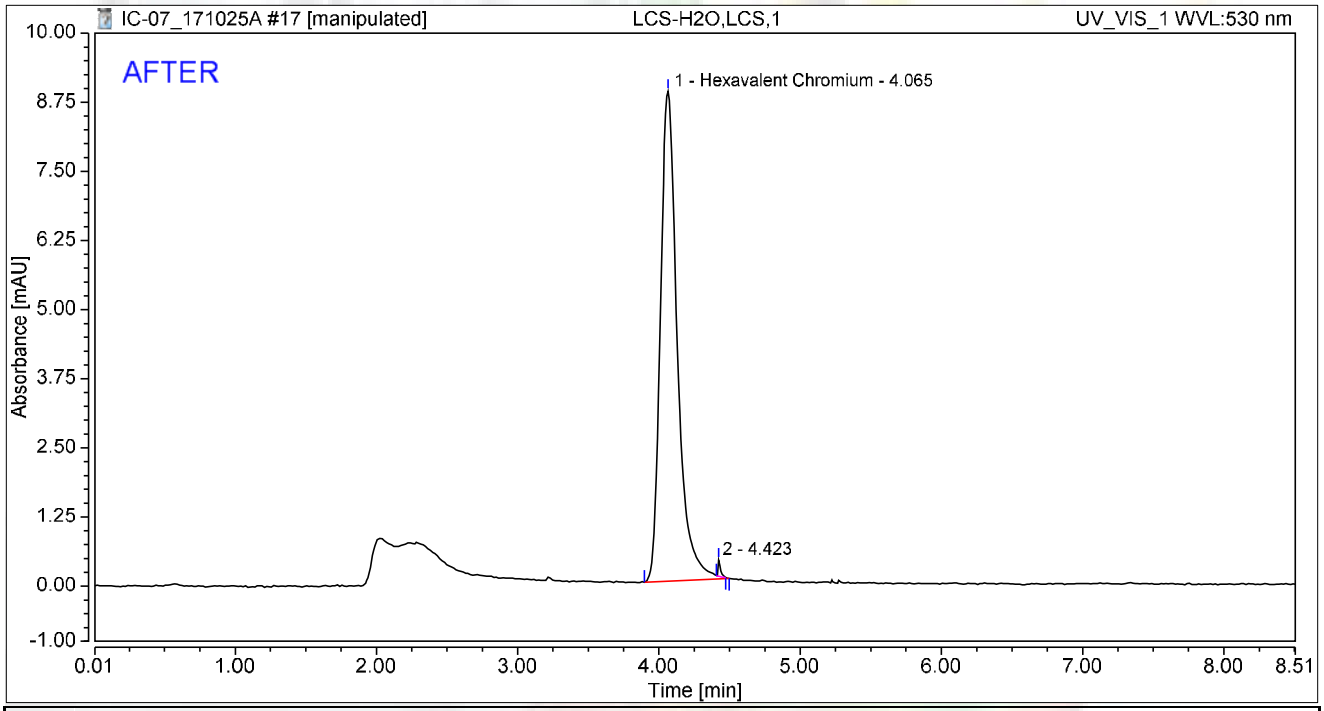
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.227	8.856	99.54	96.78	4.9651
2		4.423	0.006	0.294	0.46	3.22	n.a.
Total:			**1.233**	**9.151**	**100.00**	**100.00**	

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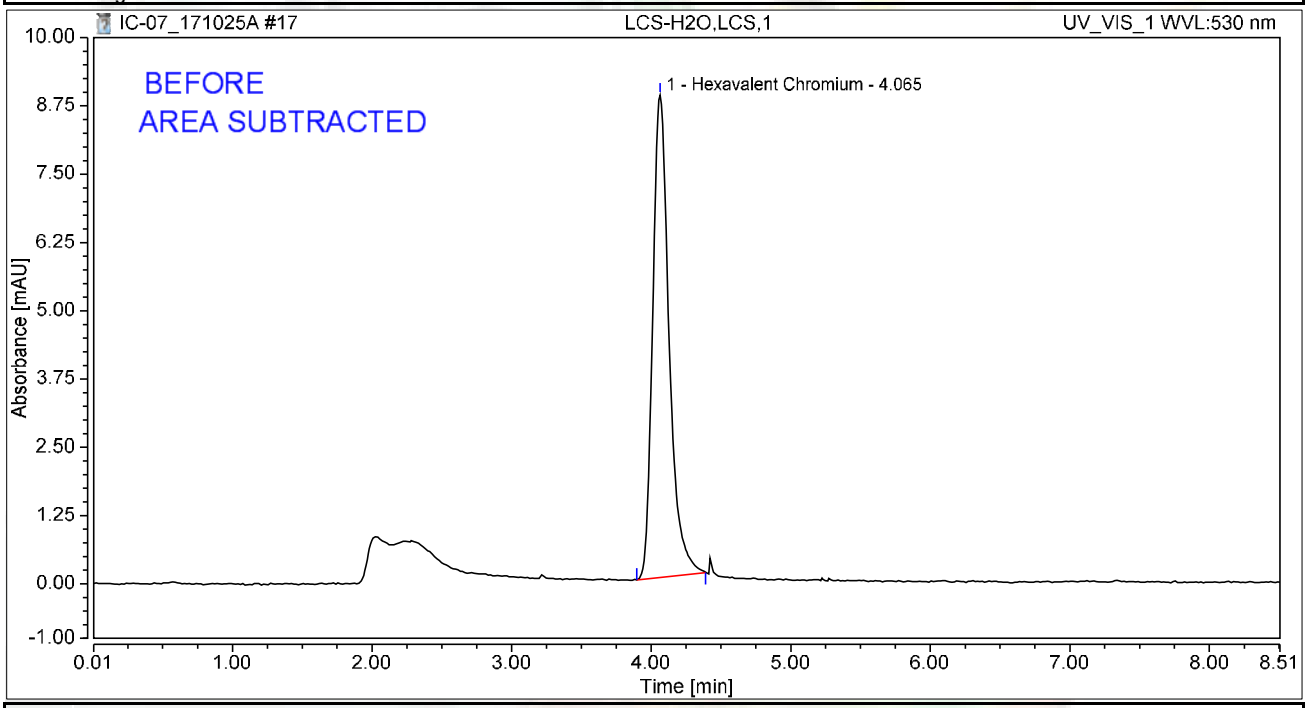
Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.203	8.828	100.00	100.00	4.8652
Total:			**1.203**	**8.828**	**100.00**	**100.00**	

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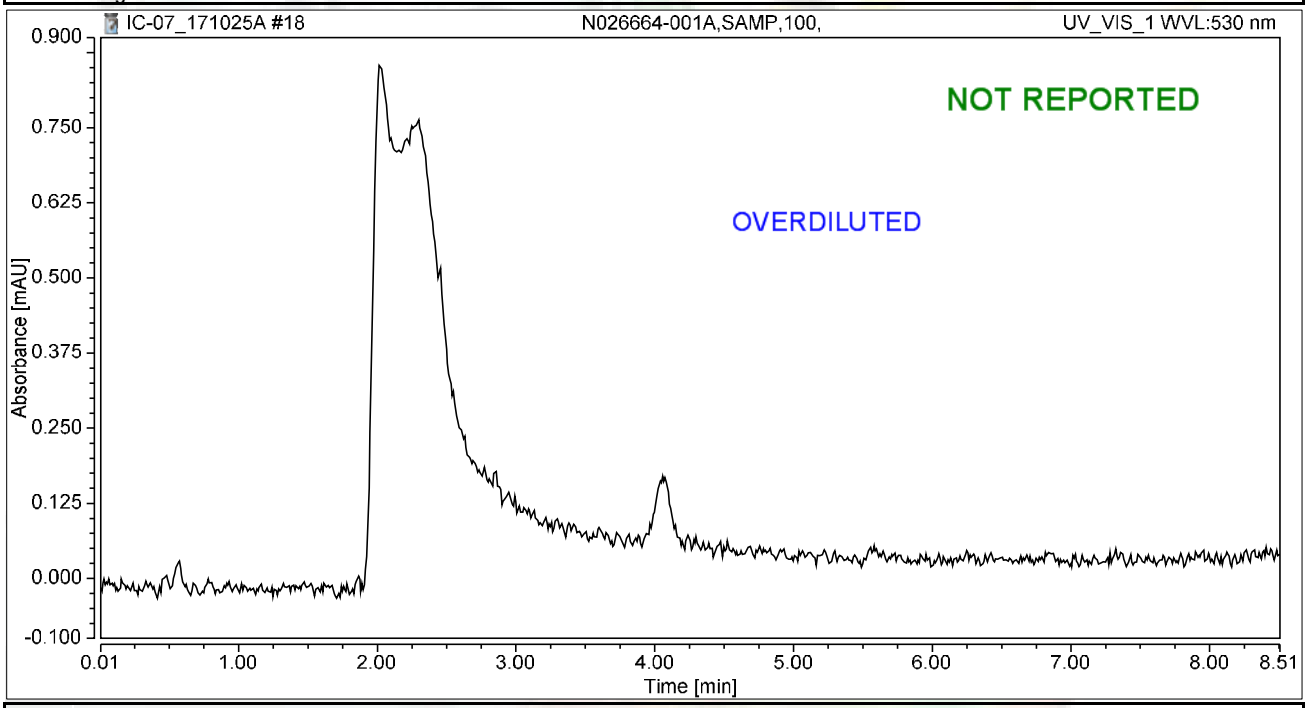
Chromatogram and Results

Injection Details

Injection Name:	**N026664-001A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 04:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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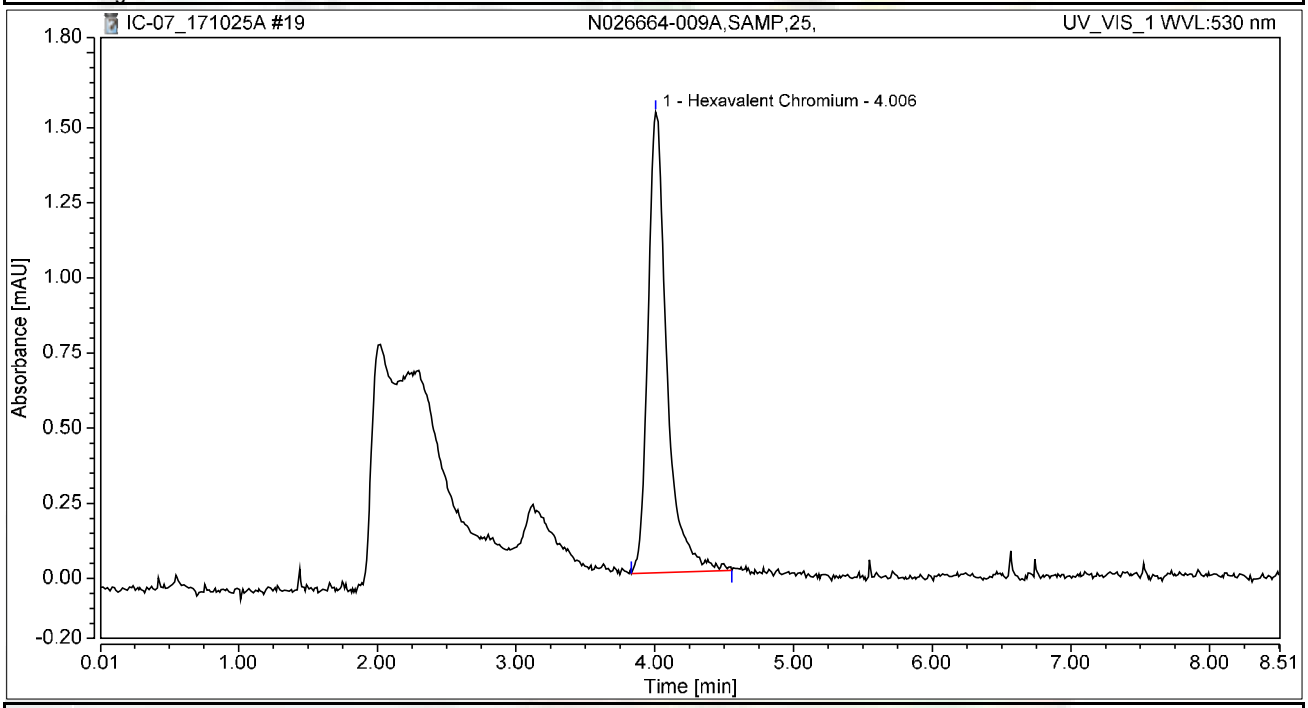
Chromatogram and Results

Injection Details

Injection Name:	**N026664-009A,SAMP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

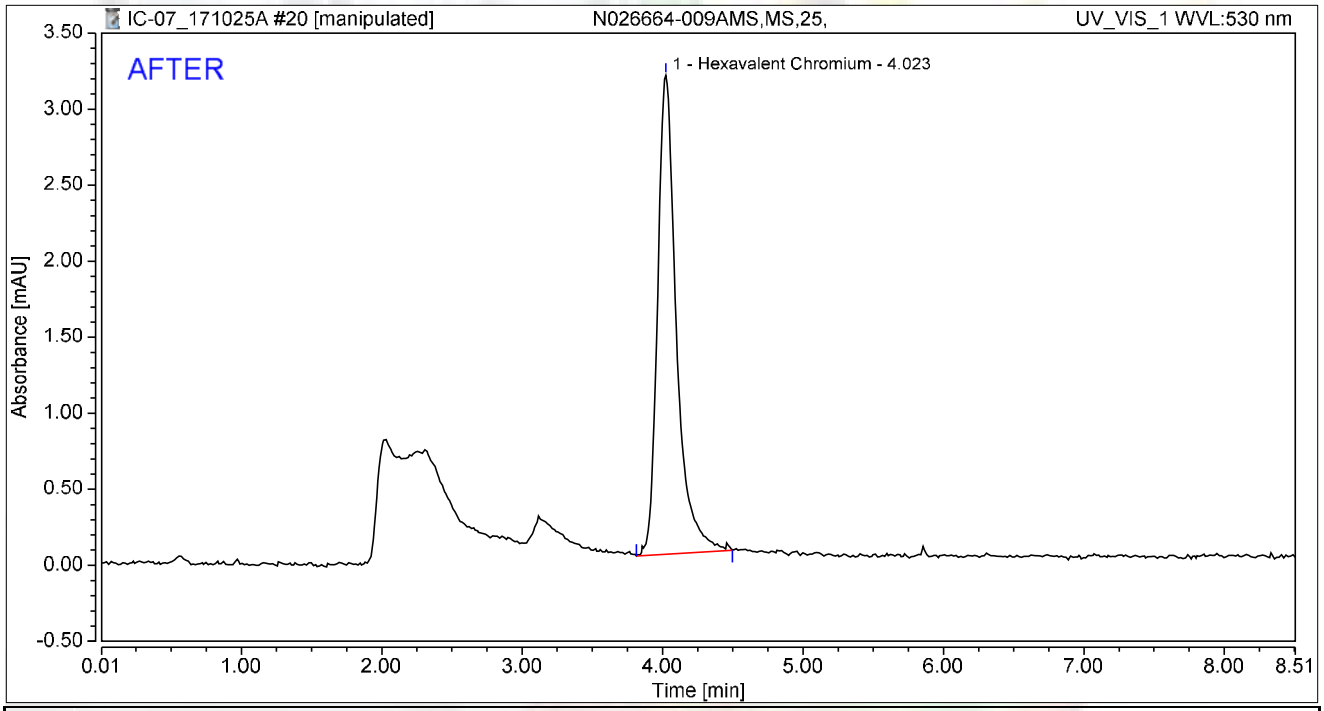
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.006	0.242	1.533	100.00	100.00	0.9806
Total:			**0.242**	**1.533**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-009AMS,MS,25,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.492	3.152	100.00	100.00	1.9892
Total:			**0.492**	**3.152**	**100.00**	**100.00**	

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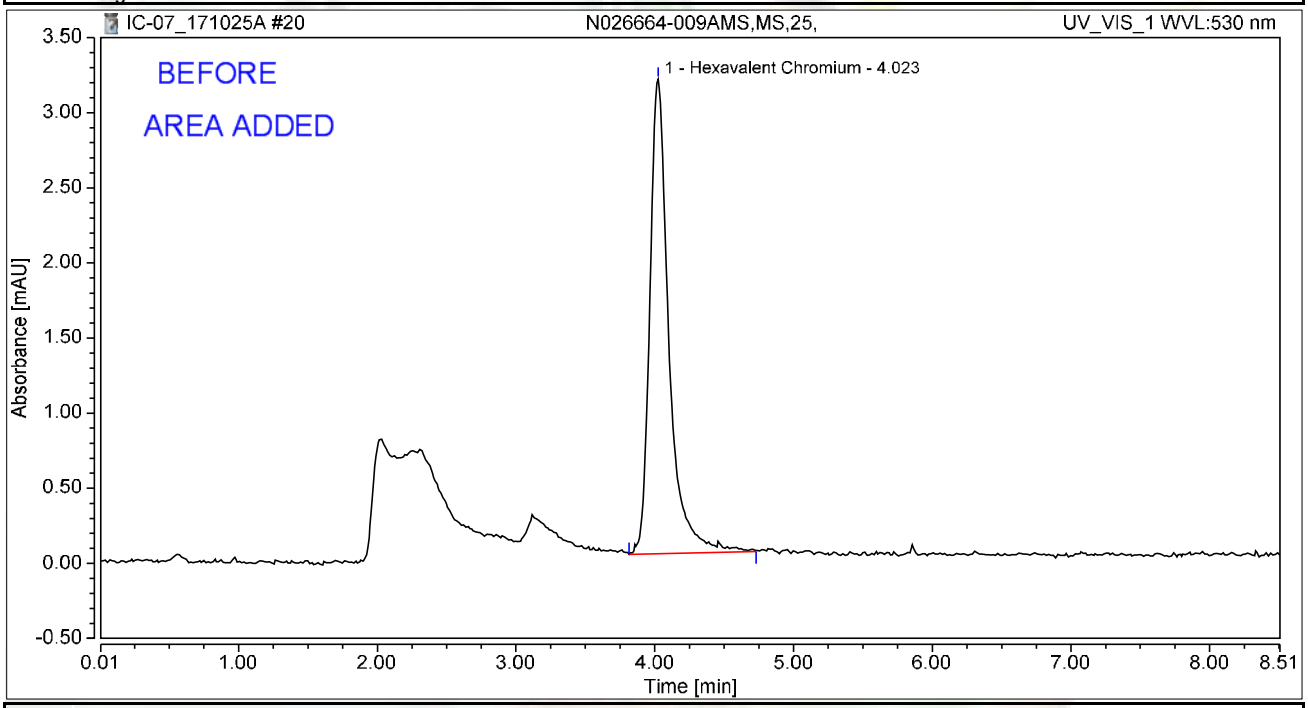
Chromatogram and Results

Injection Details

Injection Name:	**N026664-009AMS,MS,25,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.505	3.160	100.00	100.00	2.0425
Total:			**0.505**	**3.160**	**100.00**	**100.00**	

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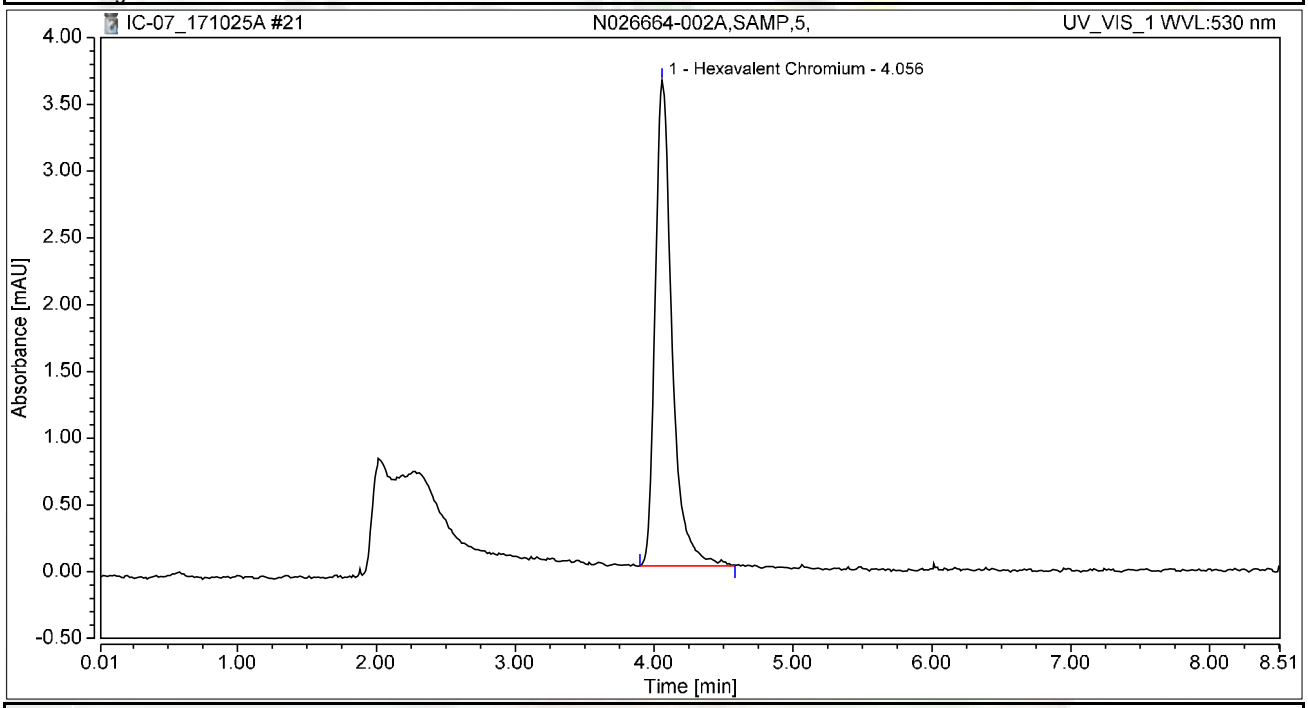
Chromatogram and Results

Injection Details

Injection Name:	**N026664-002A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

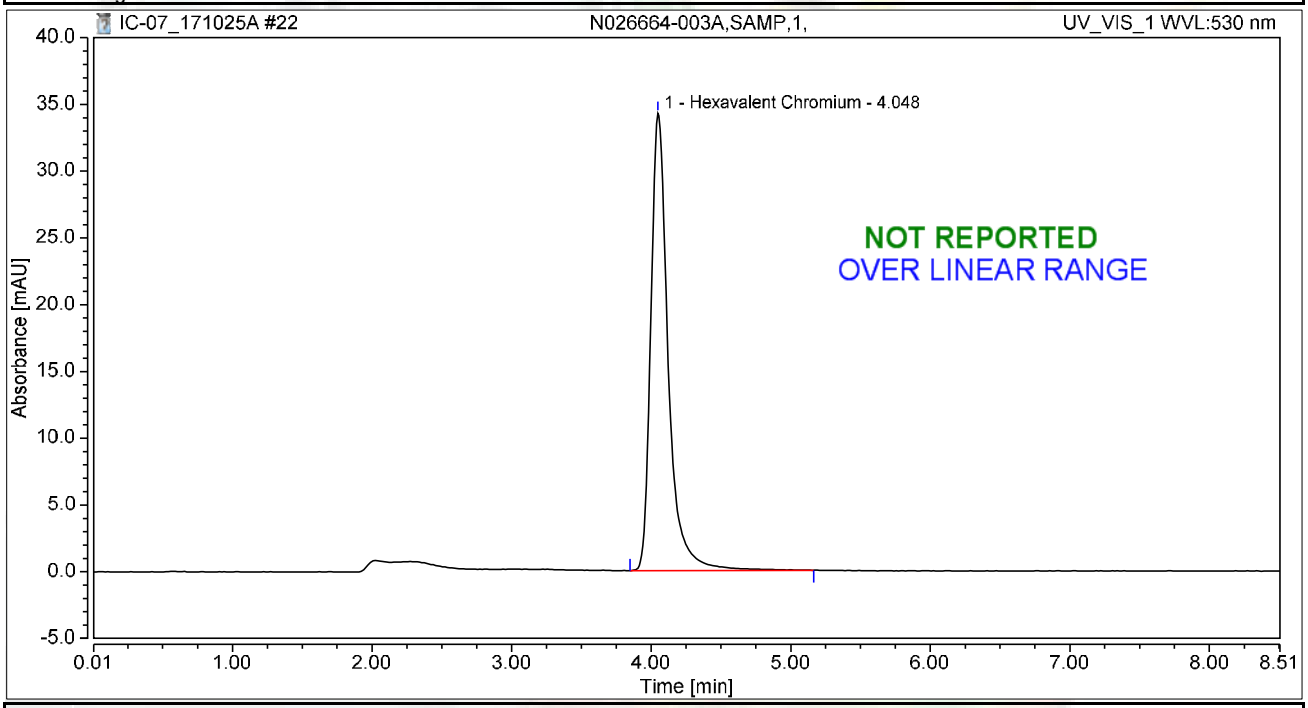
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.512	3.639	100.00	100.00	2.0716
Total:			**0.512**	**3.639**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-003A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

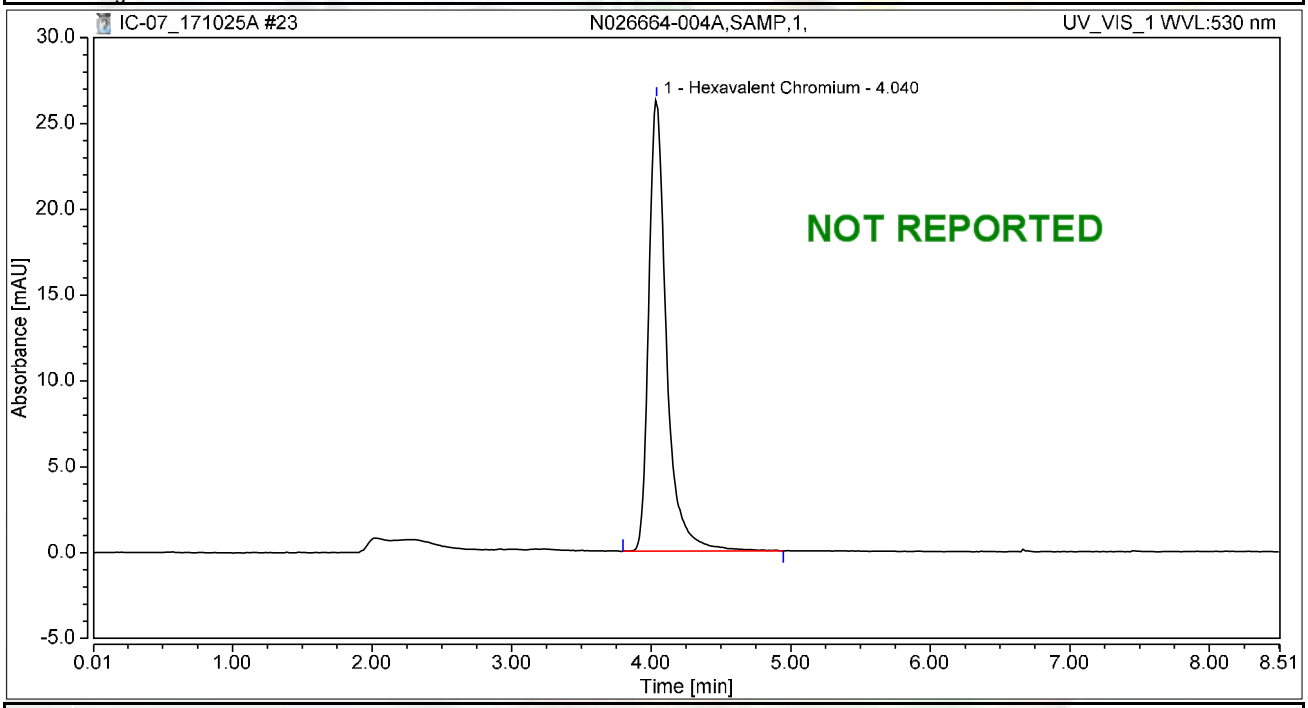
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	4.964	34.238	100.00	100.00	20.0805
Total:			**4.964**	**34.238**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-004A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

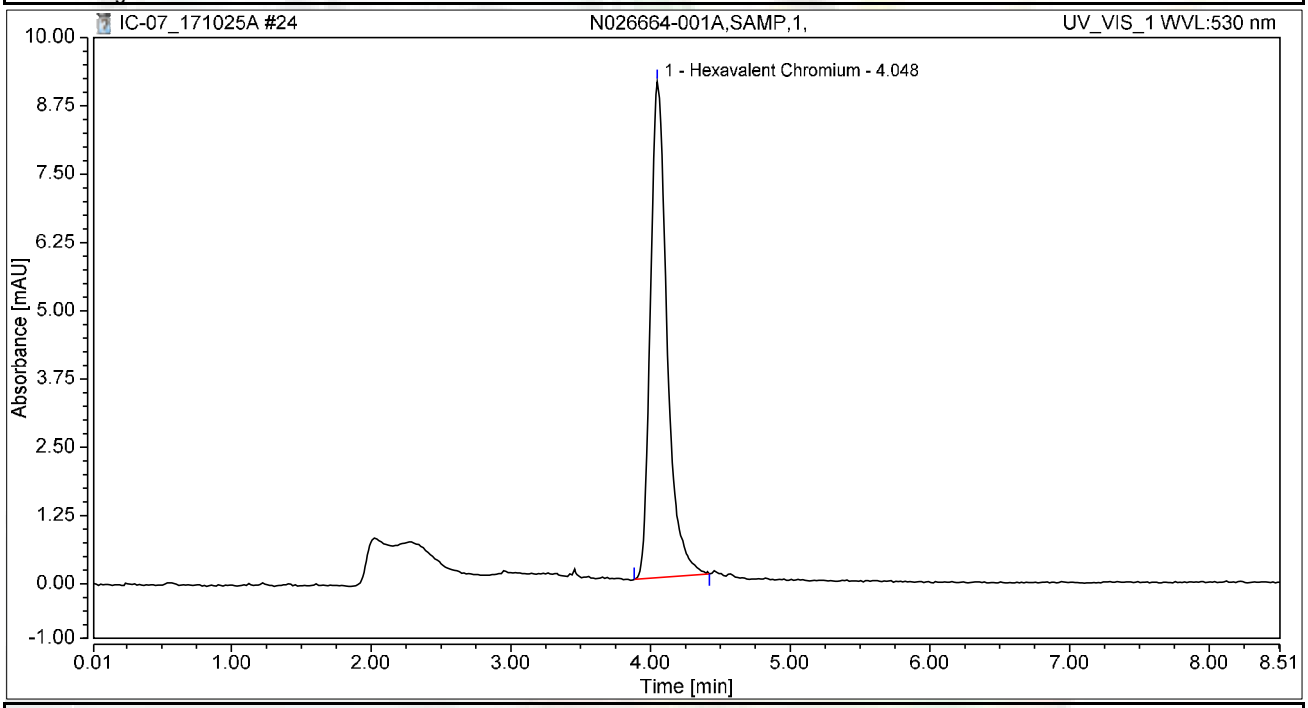
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	3.875	26.338	100.00	100.00	15.6754
Total:			**3.875**	**26.338**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-001A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

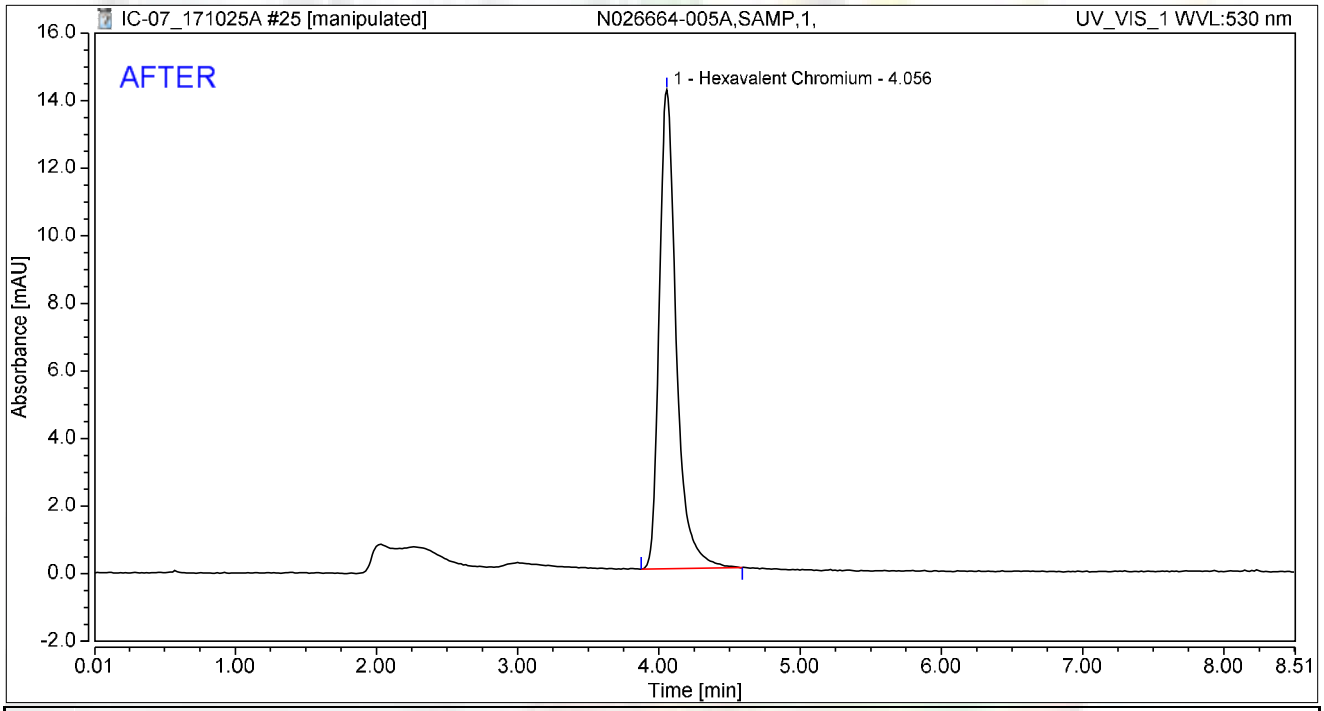
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.260	9.082	100.00	100.00	5.0972
Total:			**1.260**	**9.082**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.988	14.180	100.00	100.00	8.0417
Total:			**1.988**	**14.180**	**100.00**	**100.00**	

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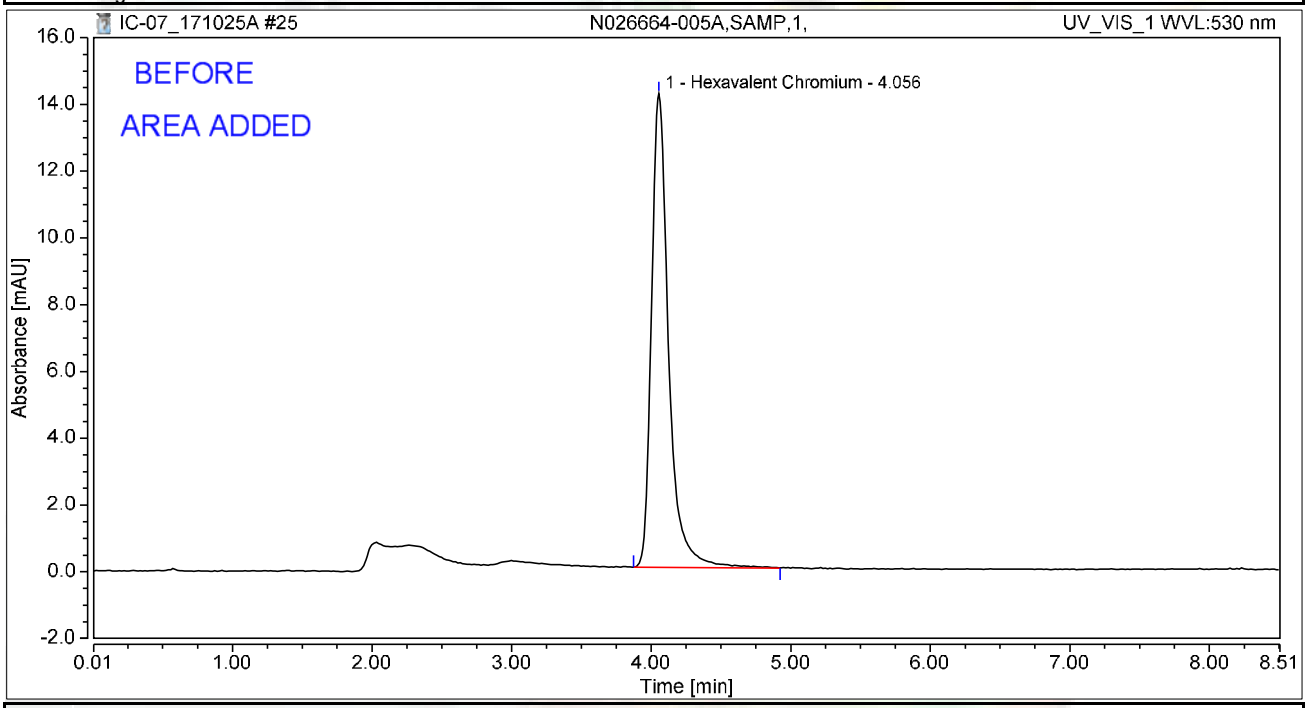
Chromatogram and Results

Injection Details

Injection Name:	**N026664-005A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 05:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.021	14.195	100.00	100.00	8.1738
Total:			**2.021**	**14.195**	**100.00**	**100.00**	

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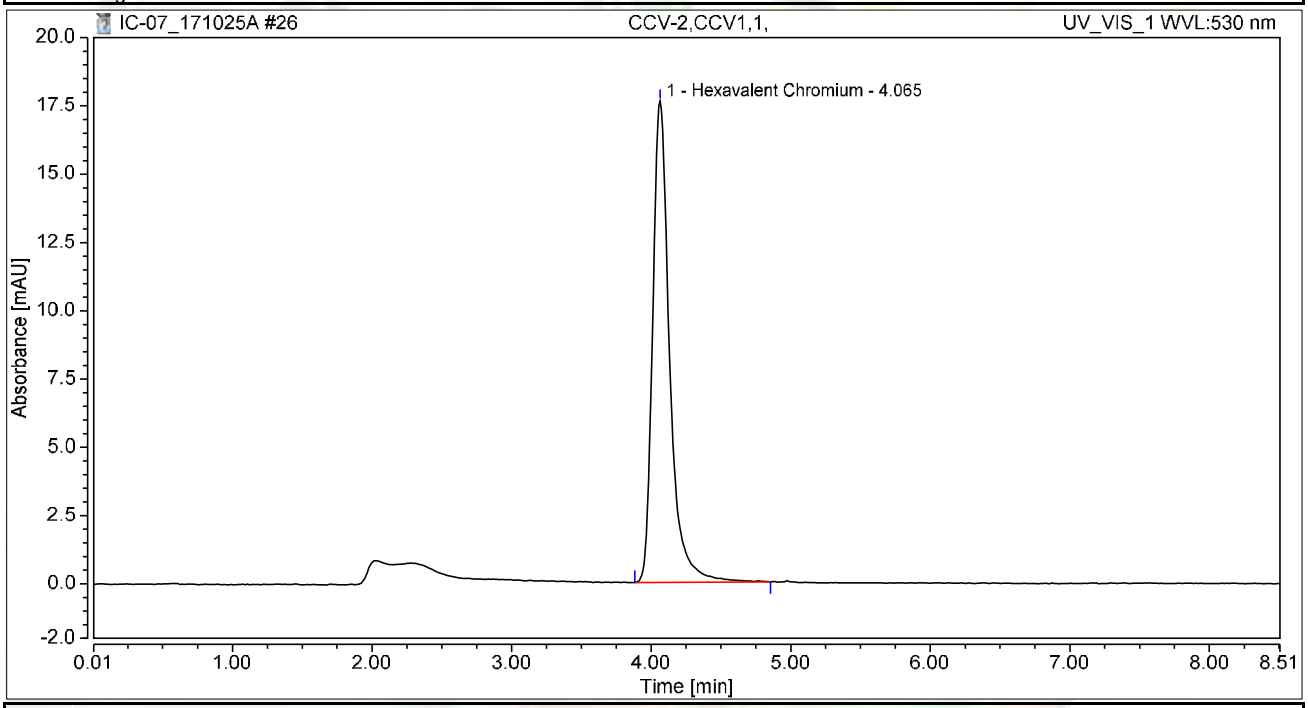
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

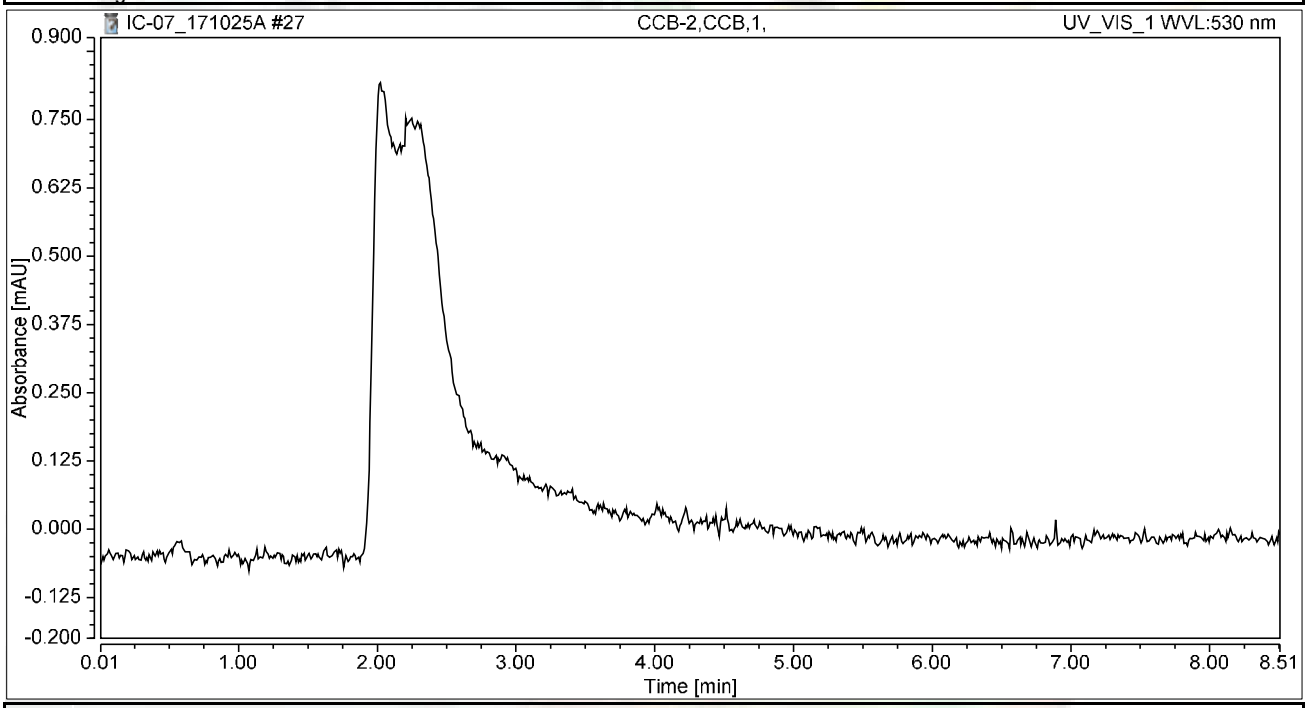
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.486	17.616	100.00	100.00	10.0579
Total:			**2.486**	**17.616**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

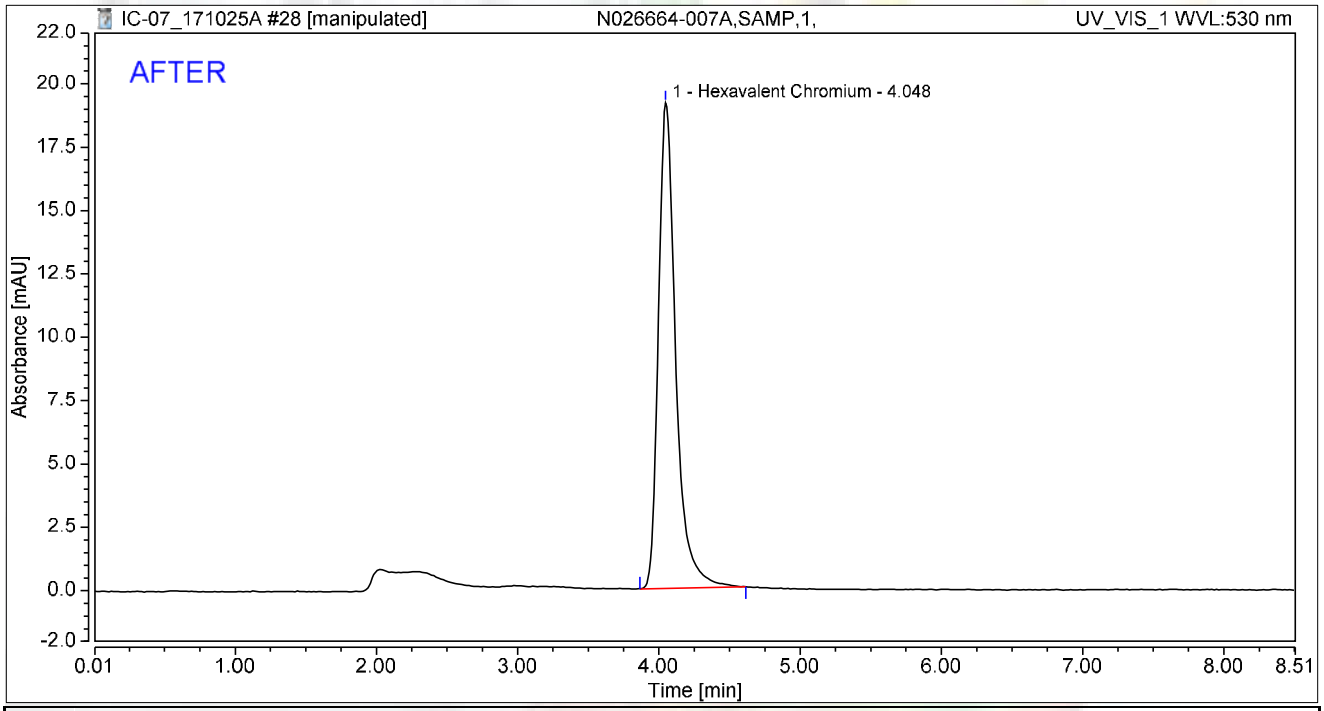
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.722	19.153	100.00	100.00	11.0123
Total:			**2.722**	**19.153**	**100.00**	**100.00**	

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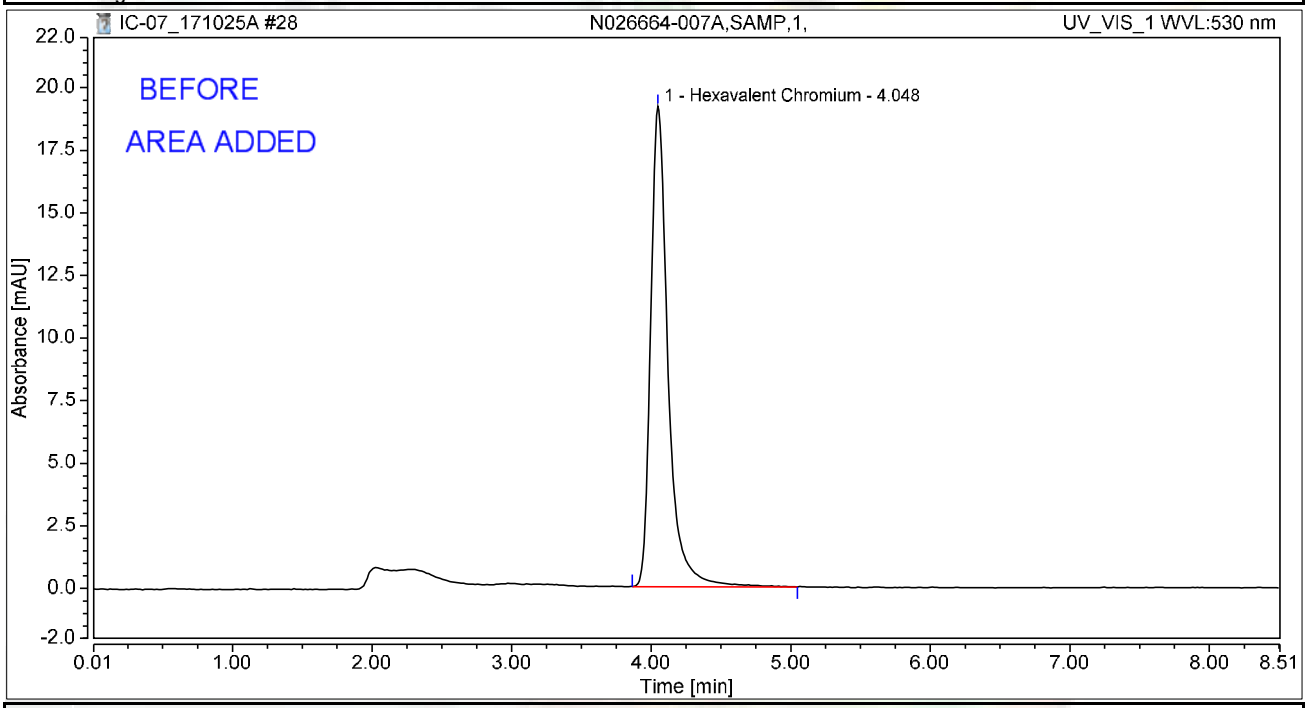
Chromatogram and Results

Injection Details

Injection Name:	**N026664-007A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.774	19.175	100.00	100.00	11.2220
Total:			**2.774**	**19.175**	**100.00**	**100.00**	

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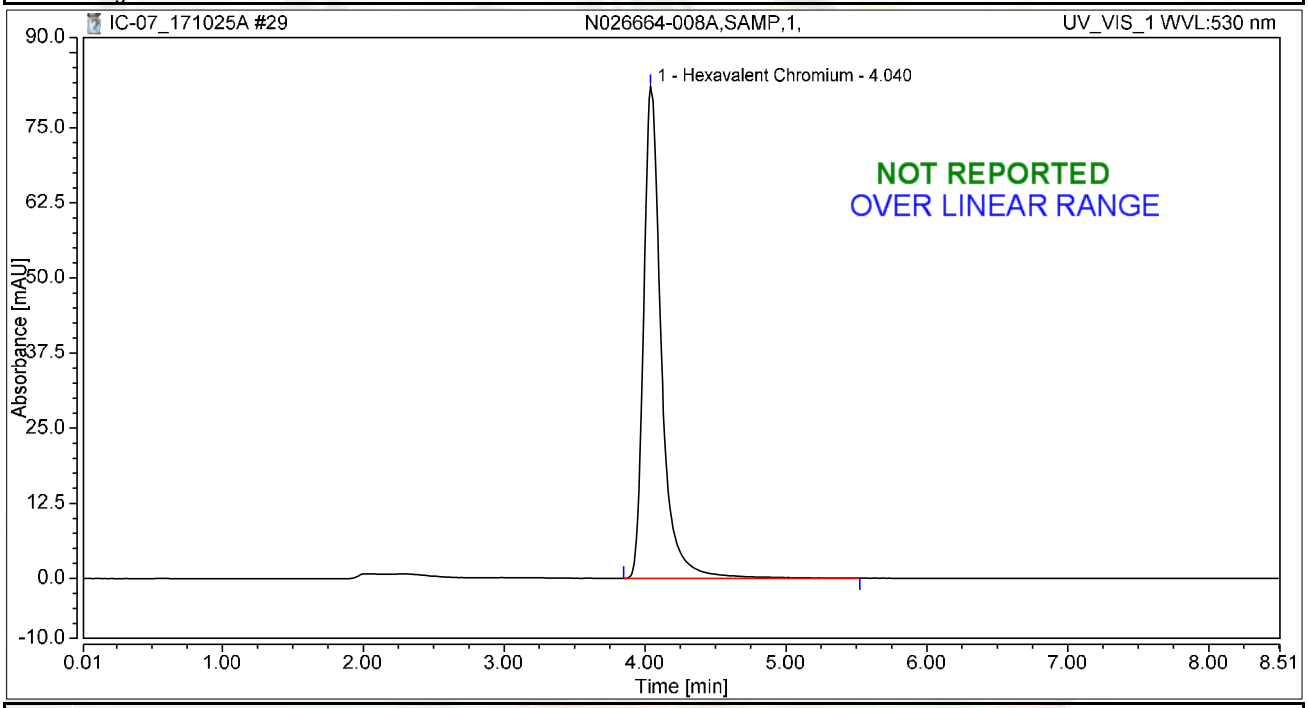
Chromatogram and Results

Injection Details

Injection Name:	**N026664-008A,SAMP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	11.936	81.835	100.00	100.00	48.2864
Total:			**11.936**	**81.835**	**100.00**	**100.00**	

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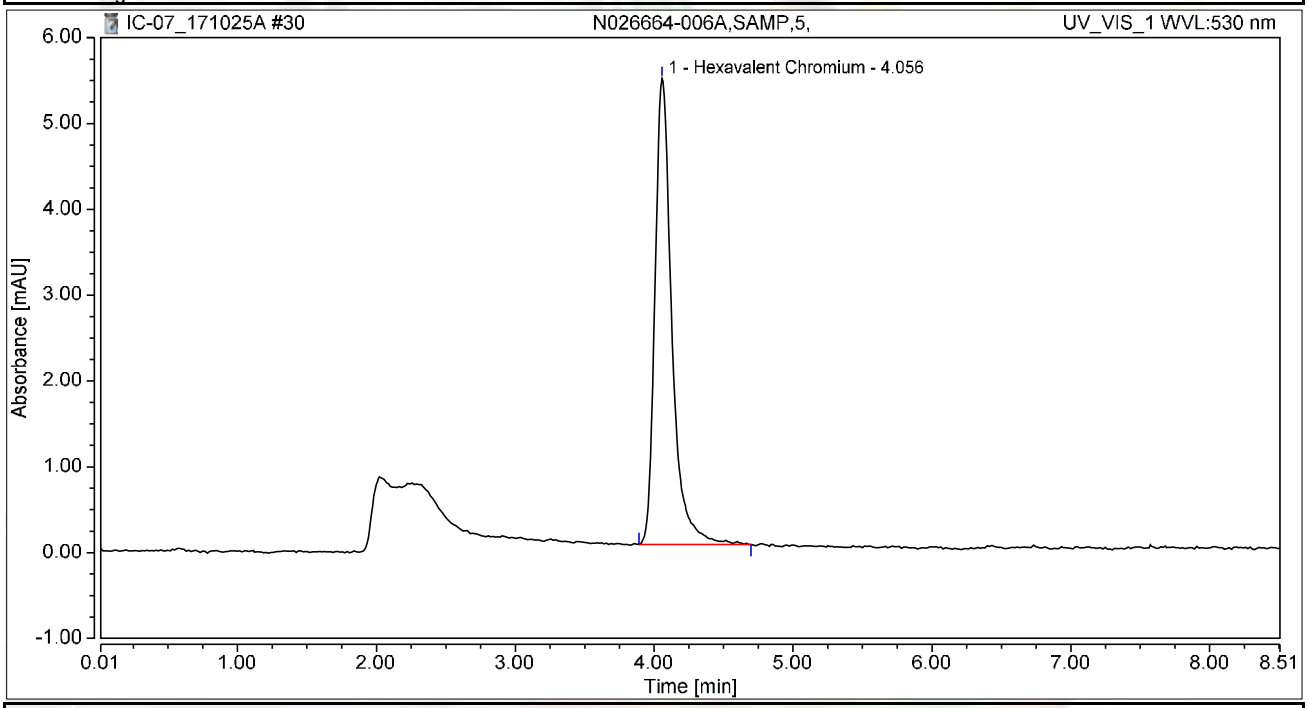
Chromatogram and Results

Injection Details

Injection Name:	**N026664-006A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

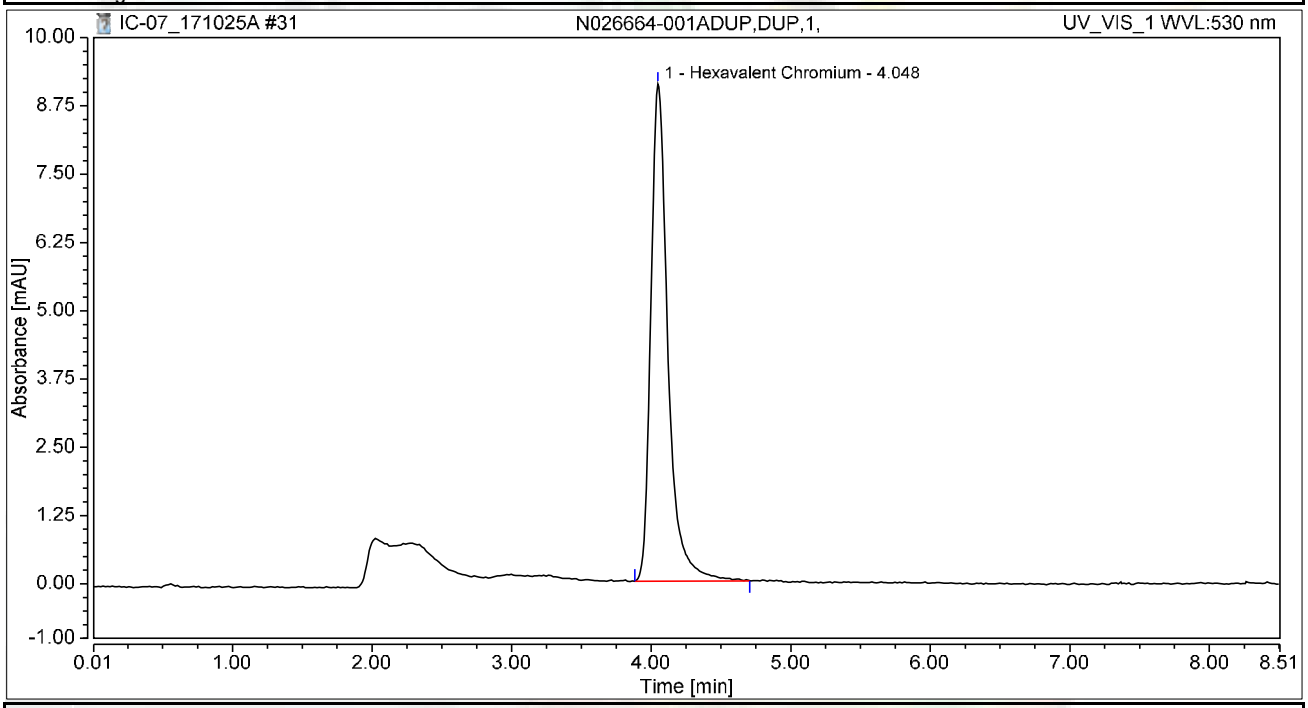
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.767	5.426	100.00	100.00	3.1038
Total:			**0.767**	**5.426**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-001ADUP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 06:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

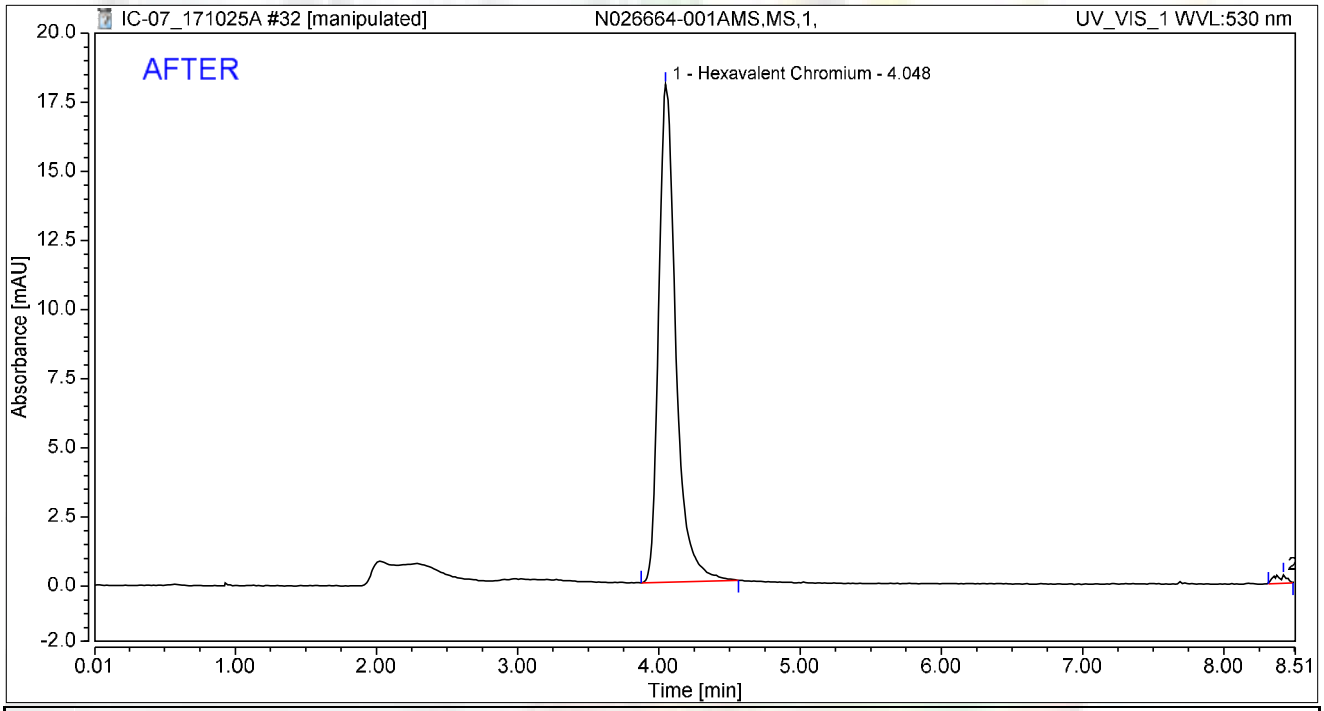
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	1.297	9.104	100.00	100.00	5.2460
Total:			**1.297**	**9.104**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.540	18.004	98.83	98.34	10.2750
2		8.423	0.030	0.304	1.17	1.66	n.a.
Total:			**2.570**	**18.308**	**100.00**	**100.00**	

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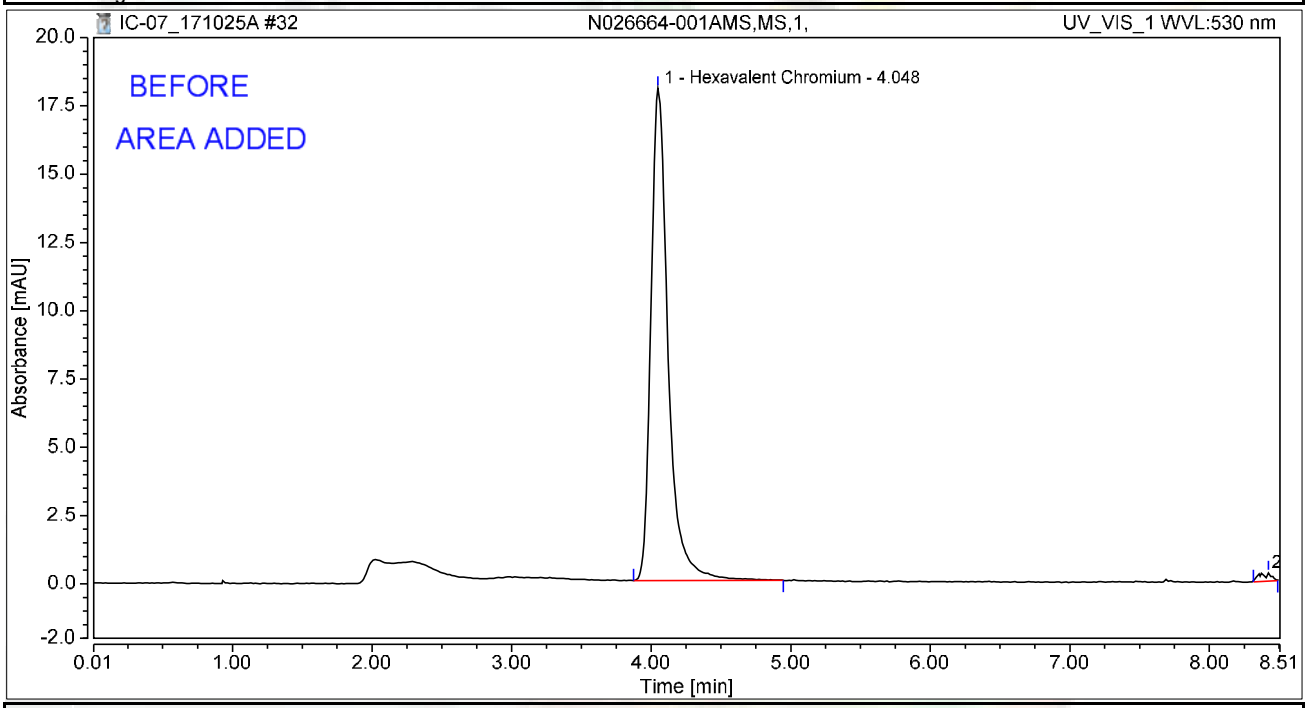
Chromatogram and Results

Injection Details

Injection Name:	**N026664-001AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.583	18.024	98.84	98.34	10.4484
2		8.423	0.030	0.304	1.16	1.66	n.a.
Total:			**2.613**	**18.329**	**100.00**	**100.00**	

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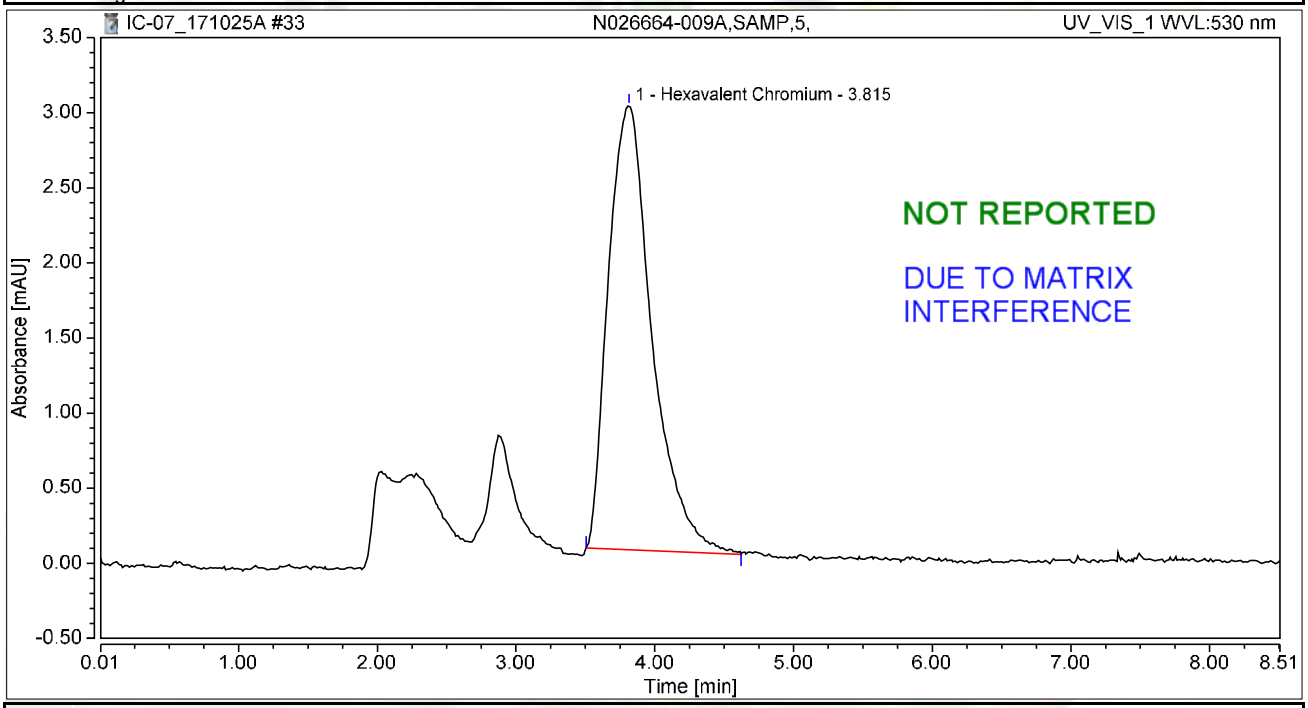
Chromatogram and Results

Injection Details

Injection Name:	**N026664-009A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.815	1.078	2.955	100.00	100.00	4.3607
Total:			**1.078**	**2.955**	**100.00**	**100.00**	

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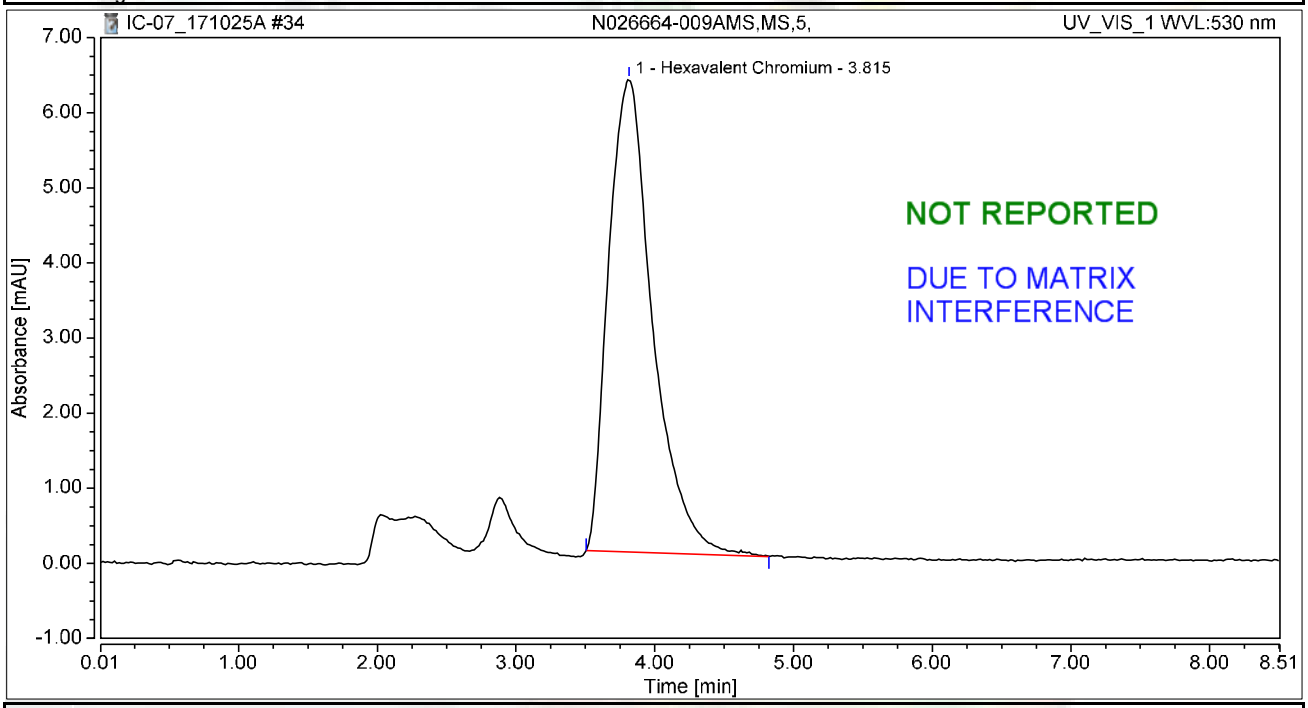
Chromatogram and Results

Injection Details

Injection Name:	**N026664-009AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.815	2.322	6.296	100.00	100.00	9.3947
Total:			**2.322**	**6.296**	**100.00**	**100.00**	

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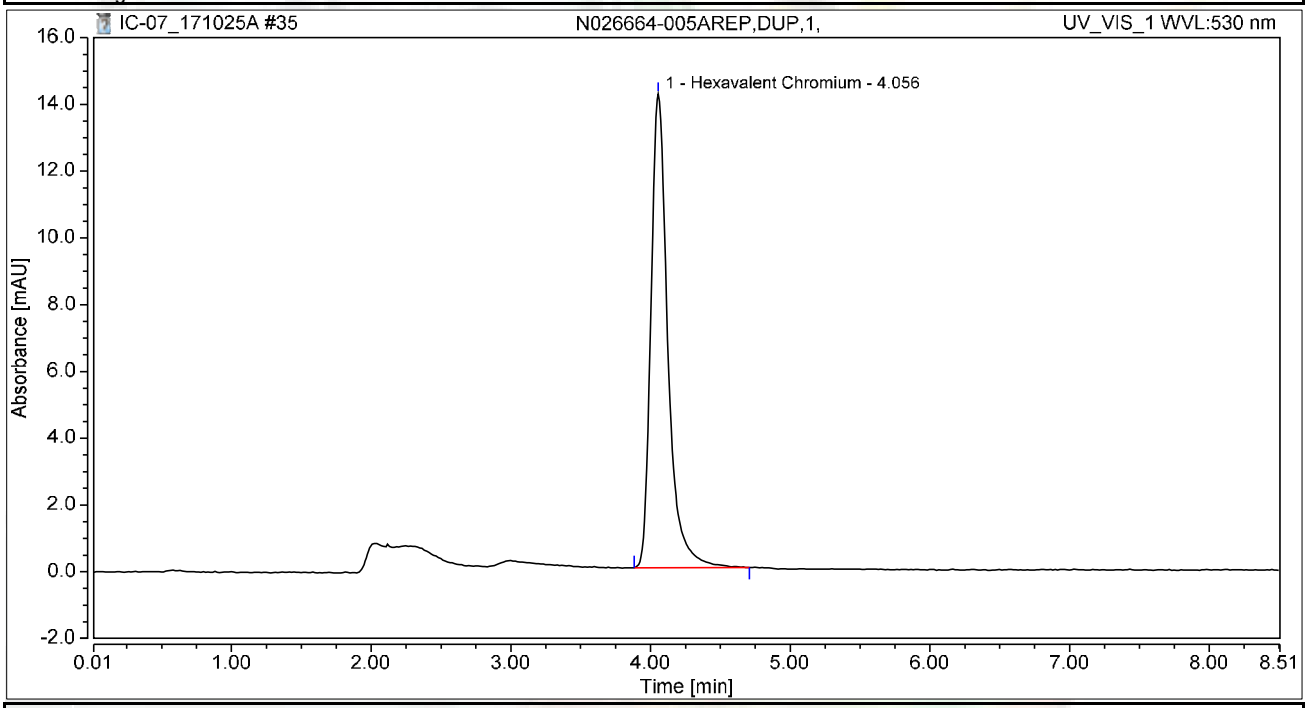
Chromatogram and Results

Injection Details

Injection Name:	**N026664-005AREP,DUP,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

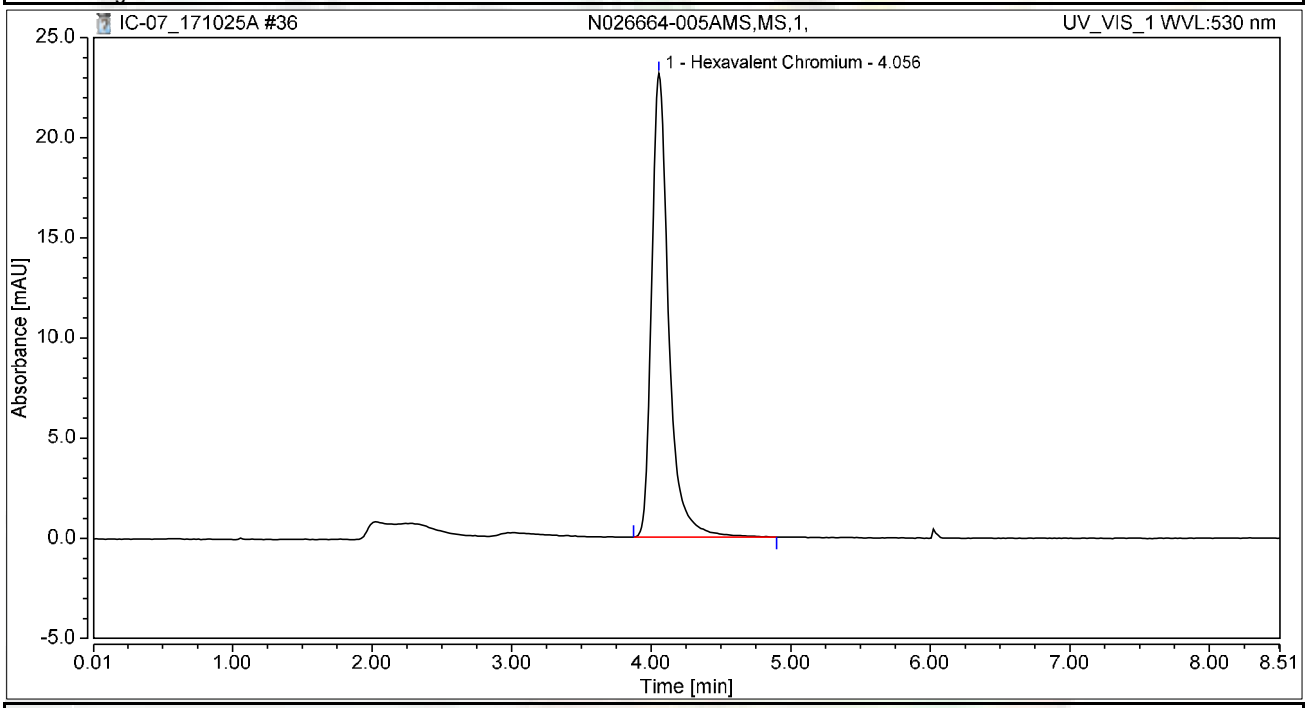
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.991	14.186	100.00	100.00	8.0549
Total:			**1.991**	**14.186**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-005AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

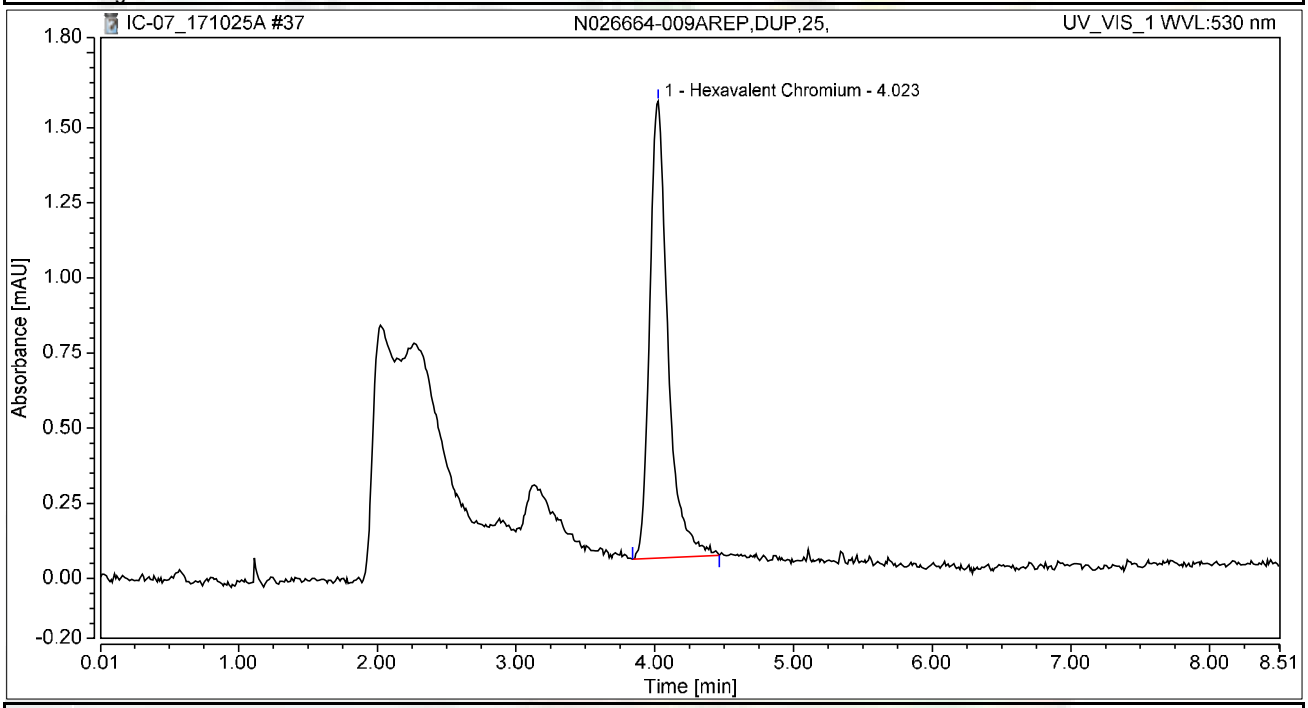
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.284	23.152	100.00	100.00	13.2829
Total:			**3.284**	**23.152**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-009AREP,DUP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 07:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

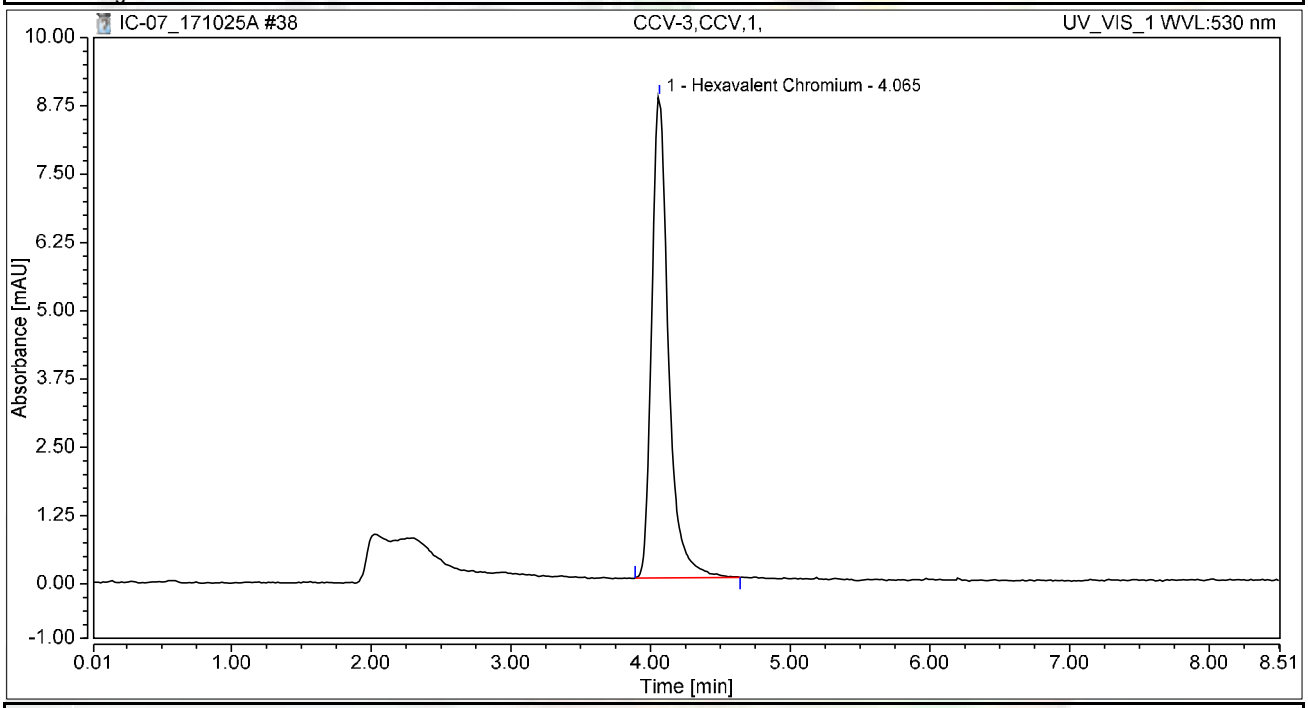
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.232	1.519	100.00	100.00	0.9372
Total:			**0.232**	**1.519**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

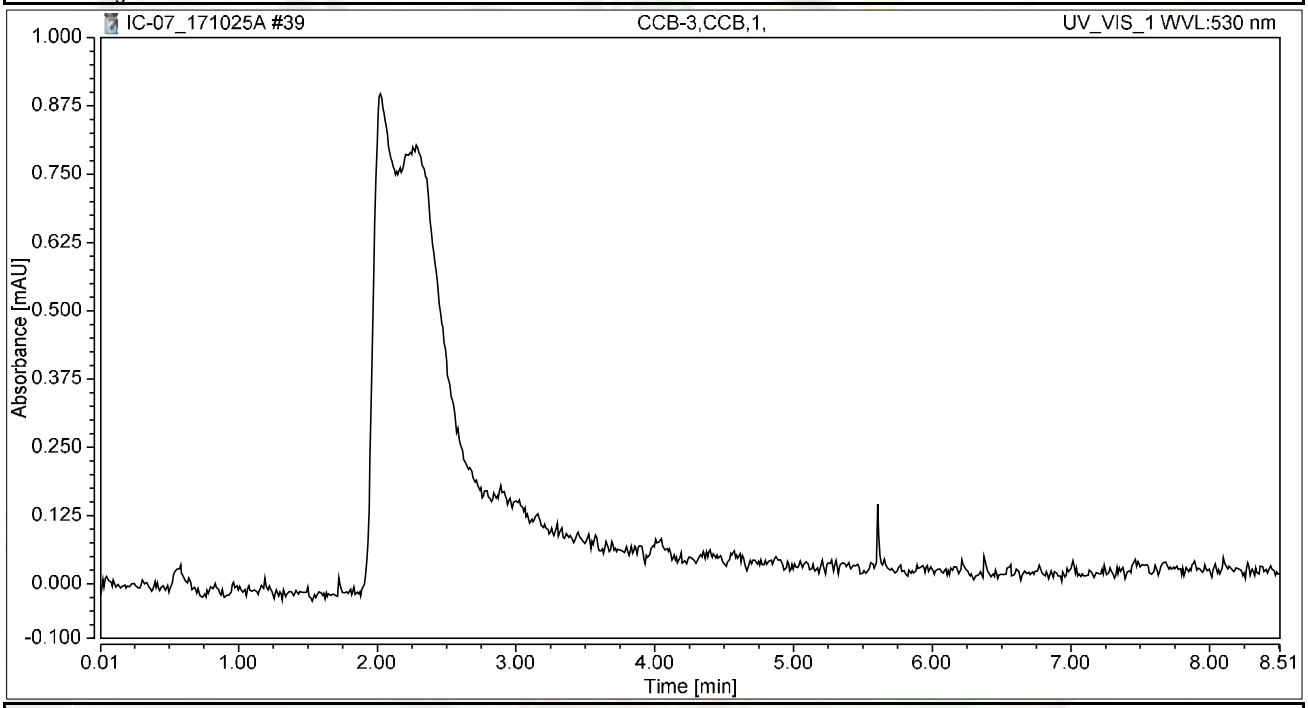
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.225	8.806	100.00	100.00	4.9566
Total:			**1.225**	**8.806**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

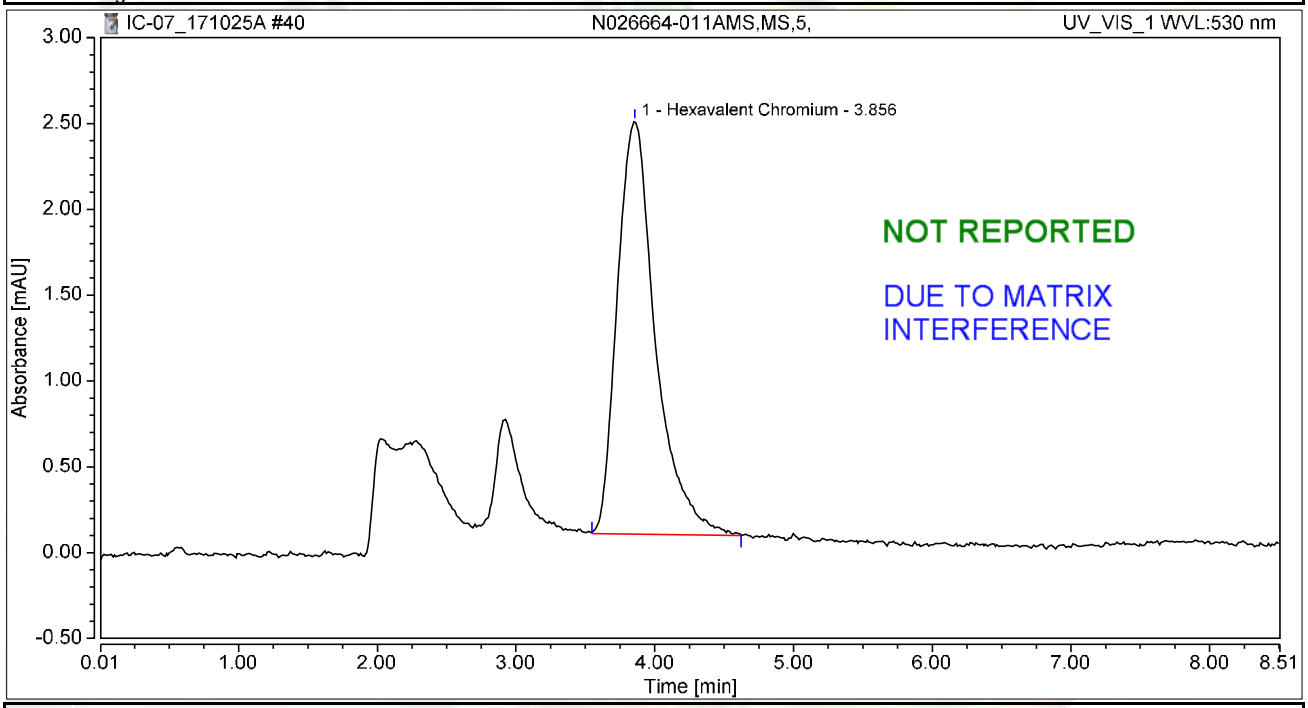
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-011AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.856	0.767	2.406	100.00	100.00	3.1021
Total:			**0.767**	**2.406**	**100.00**	**100.00**	

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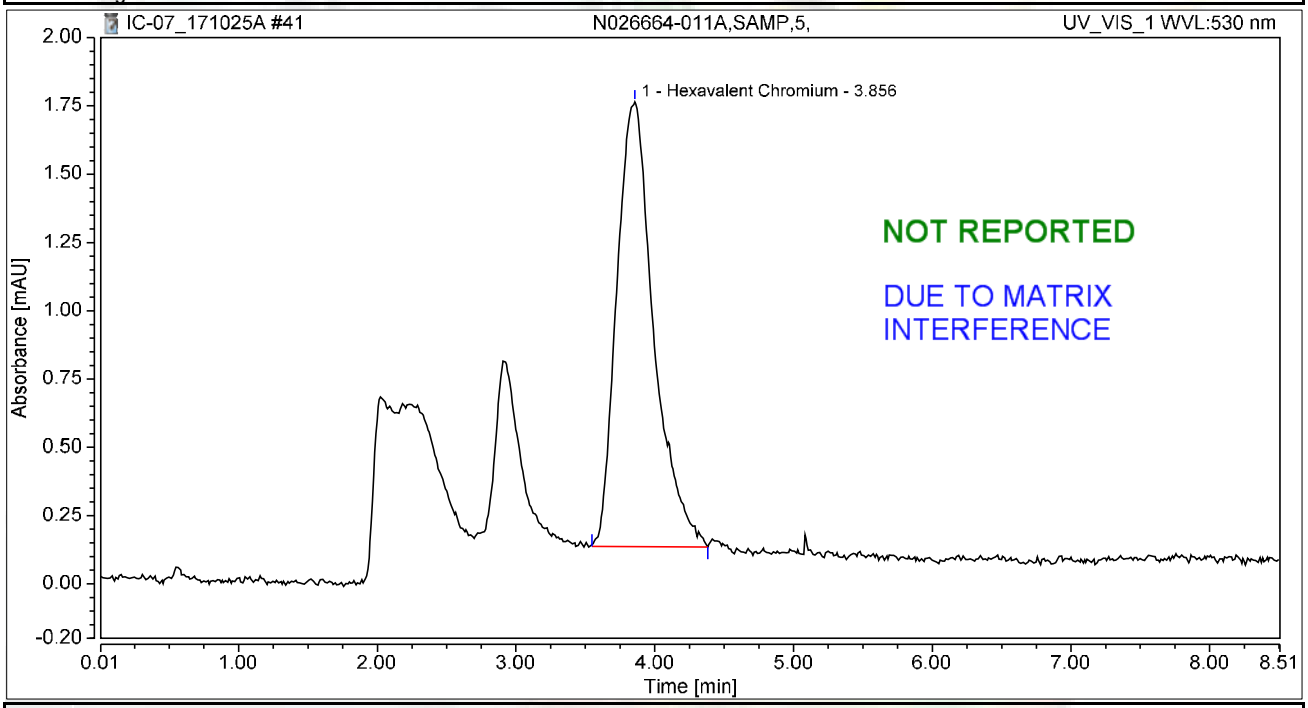
Chromatogram and Results

Injection Details

Injection Name:	**N026664-011A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.856	0.502	1.627	100.00	100.00	2.0306
Total:			**0.502**	**1.627**	**100.00**	**100.00**	

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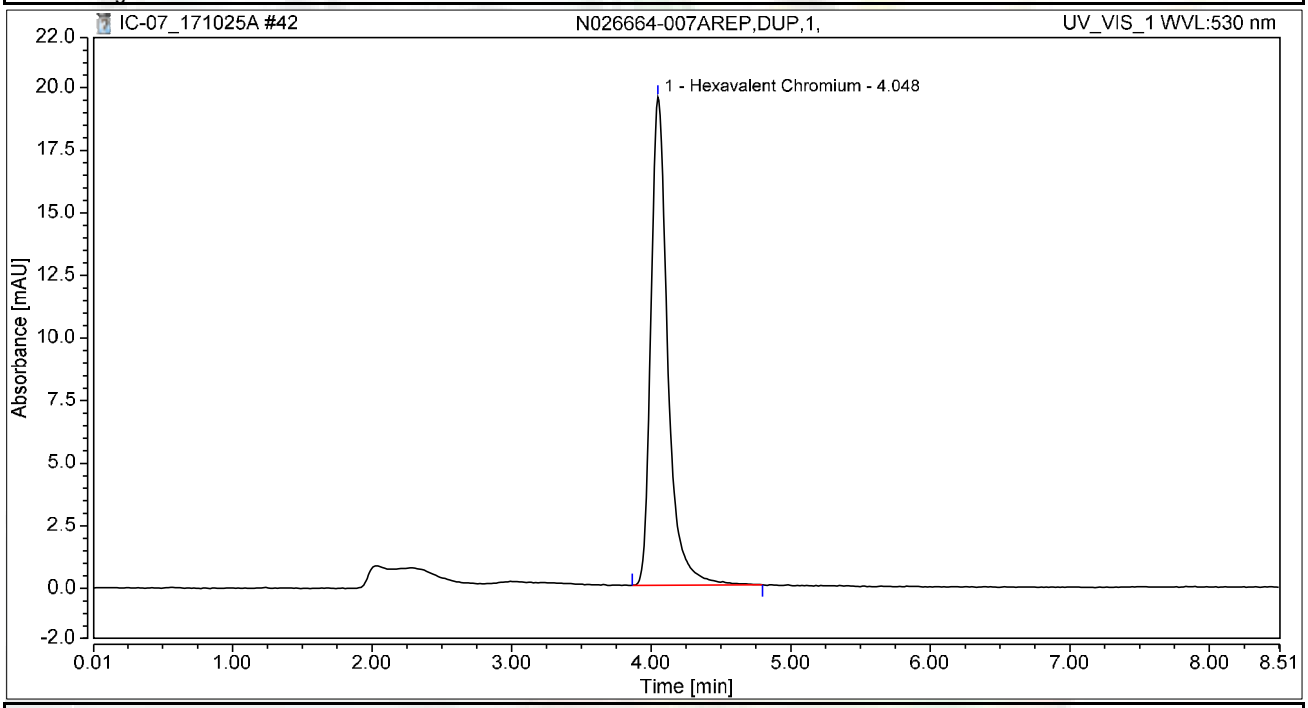
Chromatogram and Results

Injection Details

Injection Name:	**N026664-007AREP,DUP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

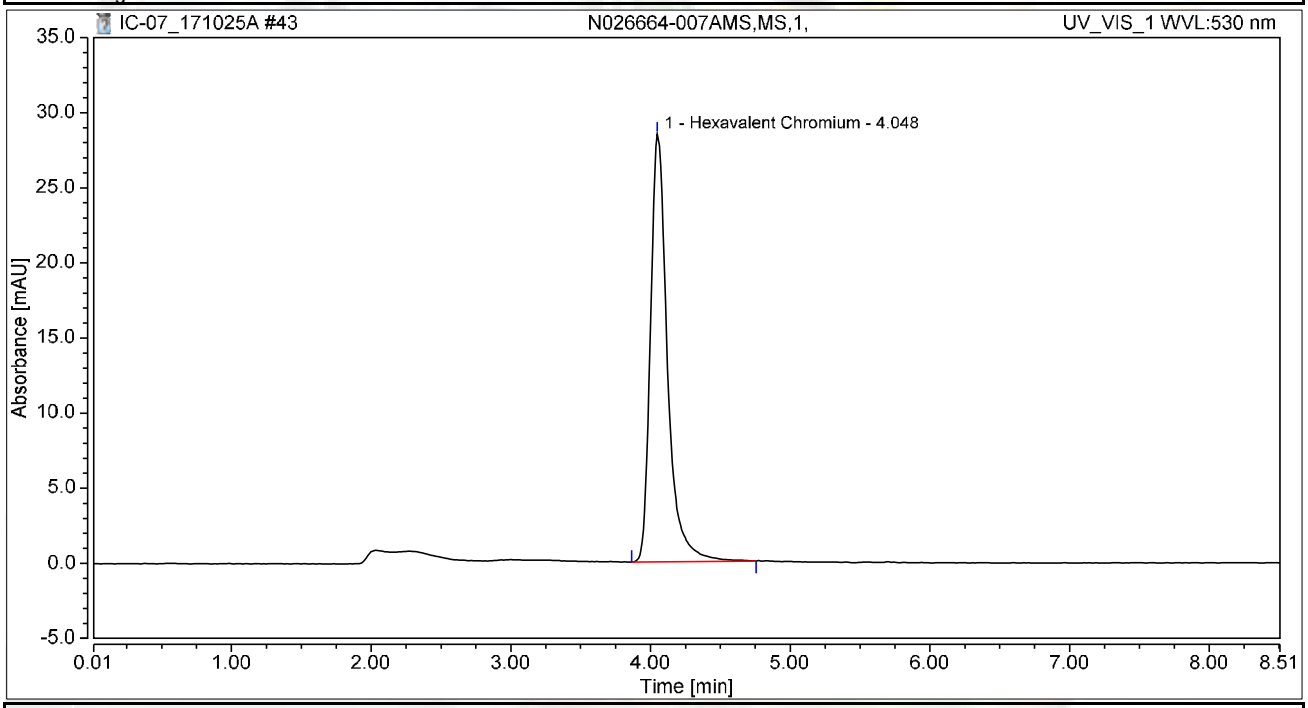
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	2.743	19.495	100.00	100.00	11.0983
Total:			**2.743**	**19.495**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-007AMS,MS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

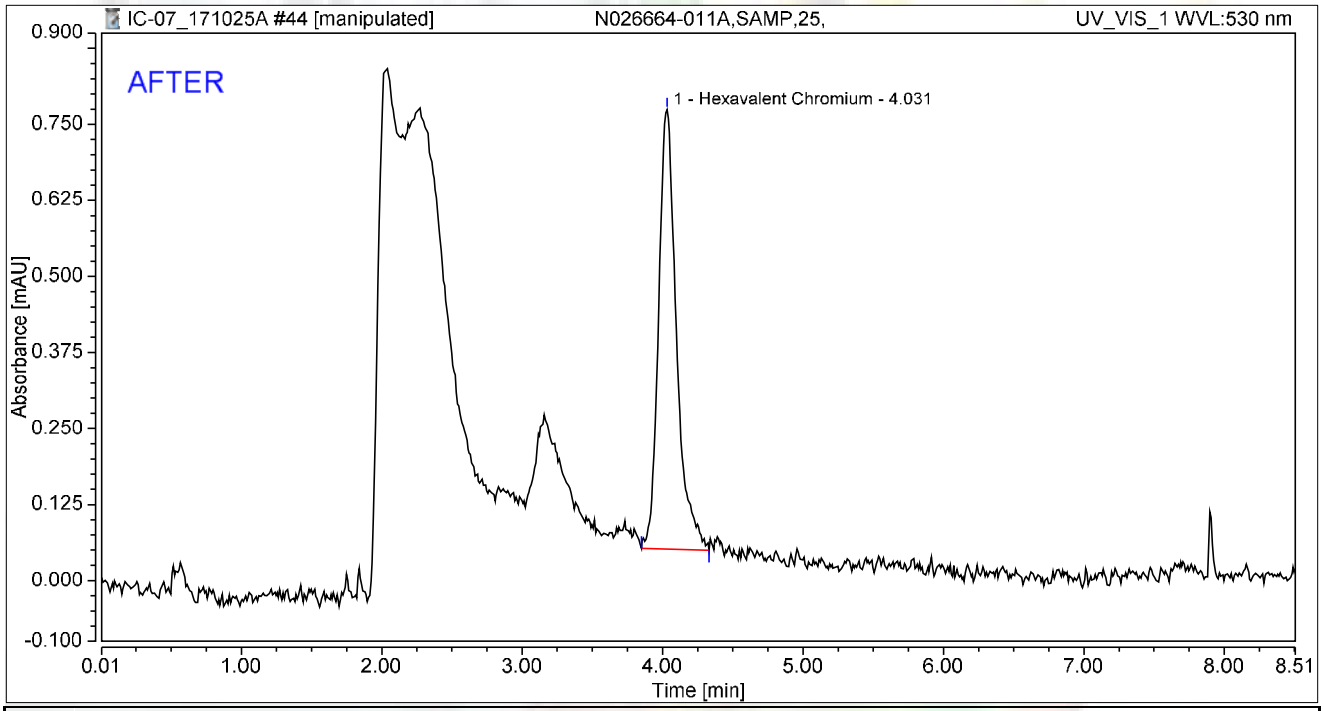
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	4.019	28.474	100.00	100.00	16.2578
Total:			**4.019**	**28.474**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-011A,SAMP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.107	0.722	100.00	100.00	0.4321
Total:			**0.107**	**0.722**	**100.00**	**100.00**	

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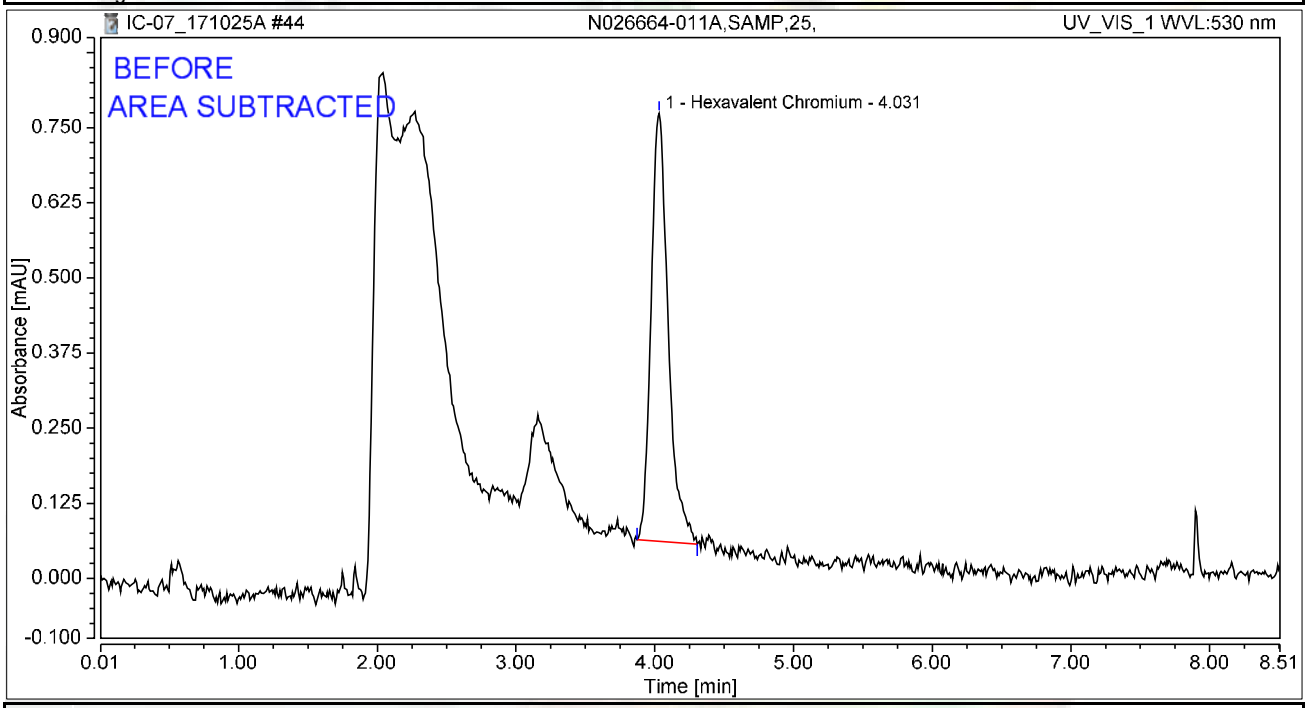
Chromatogram and Results

Injection Details

Injection Name:	**N026664-011A,SAMP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 08:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.102	0.712	100.00	100.00	0.4136
Total:			**0.102**	**0.712**	**100.00**	**100.00**	

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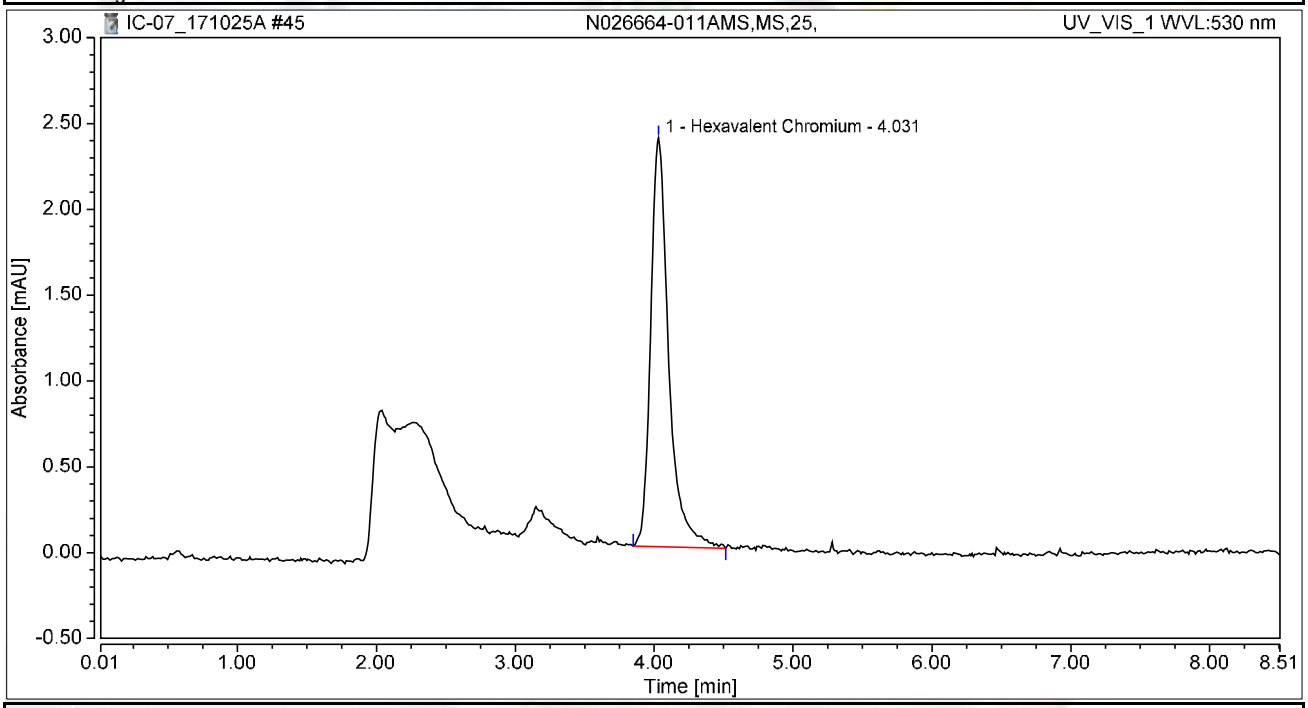
Chromatogram and Results

Injection Details

Injection Name:	**N026664-011AMS,MS,25,**	*Run Time (min):*	**8.49**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 09:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

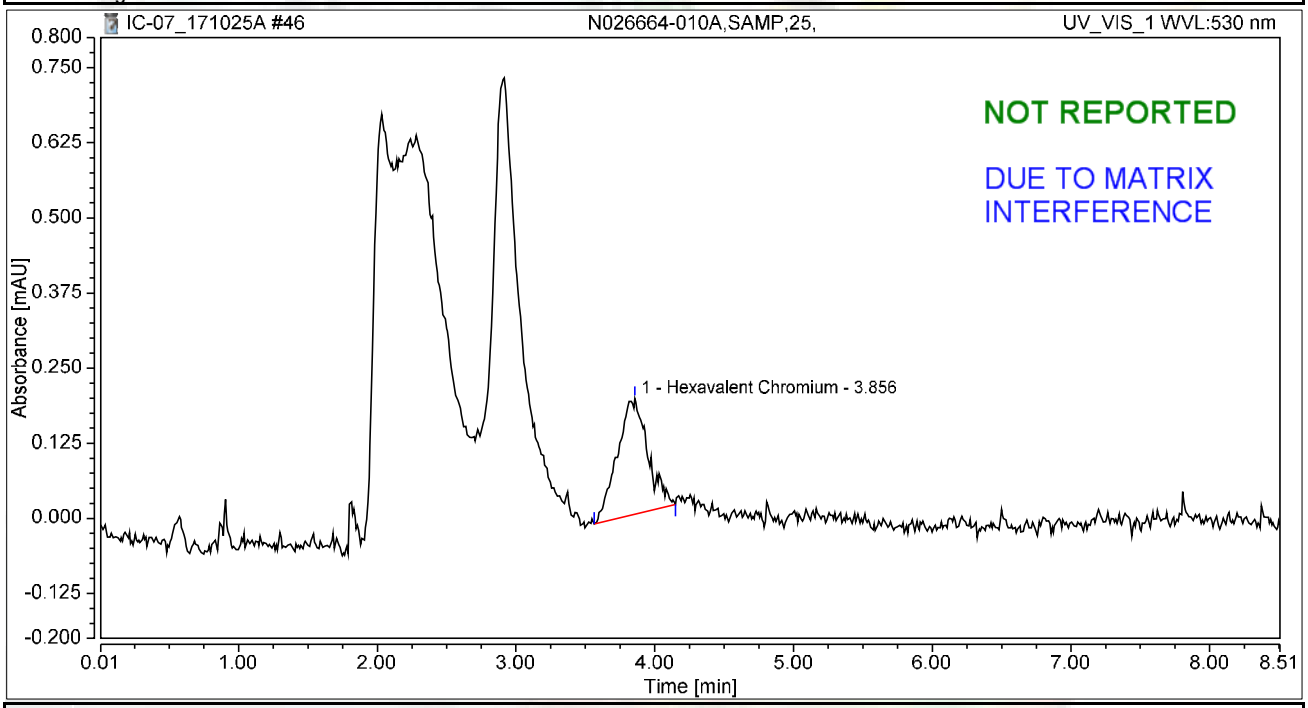
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.358	2.382	100.00	100.00	1.4485
Total:			**0.358**	**2.382**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-010A,SAMP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 09:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.856	0.049	0.193	100.00	100.00	0.1985
Total:			**0.049**	**0.193**	**100.00**	**100.00**	

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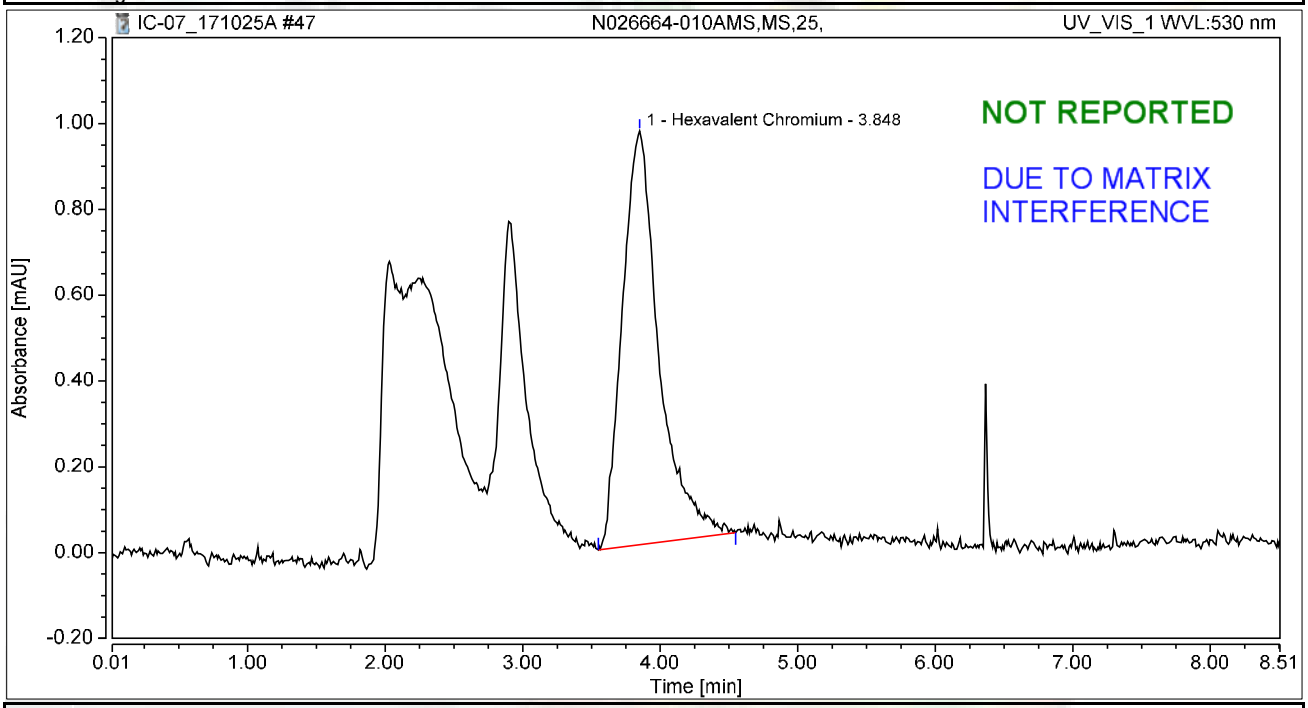
Chromatogram and Results

Injection Details

Injection Name:	**N026664-010AMS,MS,25,**	*Run Time (min):*	**8.49**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.848	0.297	0.964	100.00	100.00	1.2005
Total:			**0.297**	**0.964**	**100.00**	**100.00**	

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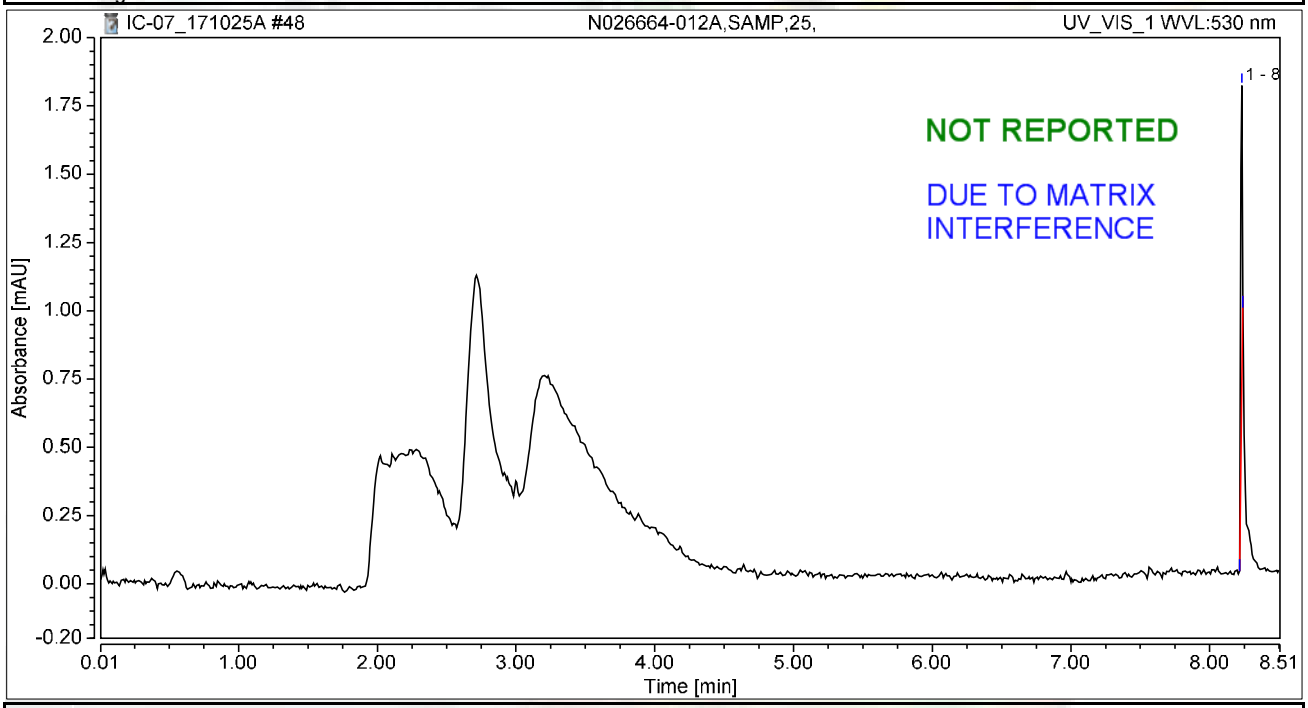
Chromatogram and Results

Injection Details

Injection Name:	**N026664-012A,SAMP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 09:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		8.231	0.019	1.106	100.00	100.00	n.a.
Total:			**0.019**	**1.106**	**100.00**	**100.00**	

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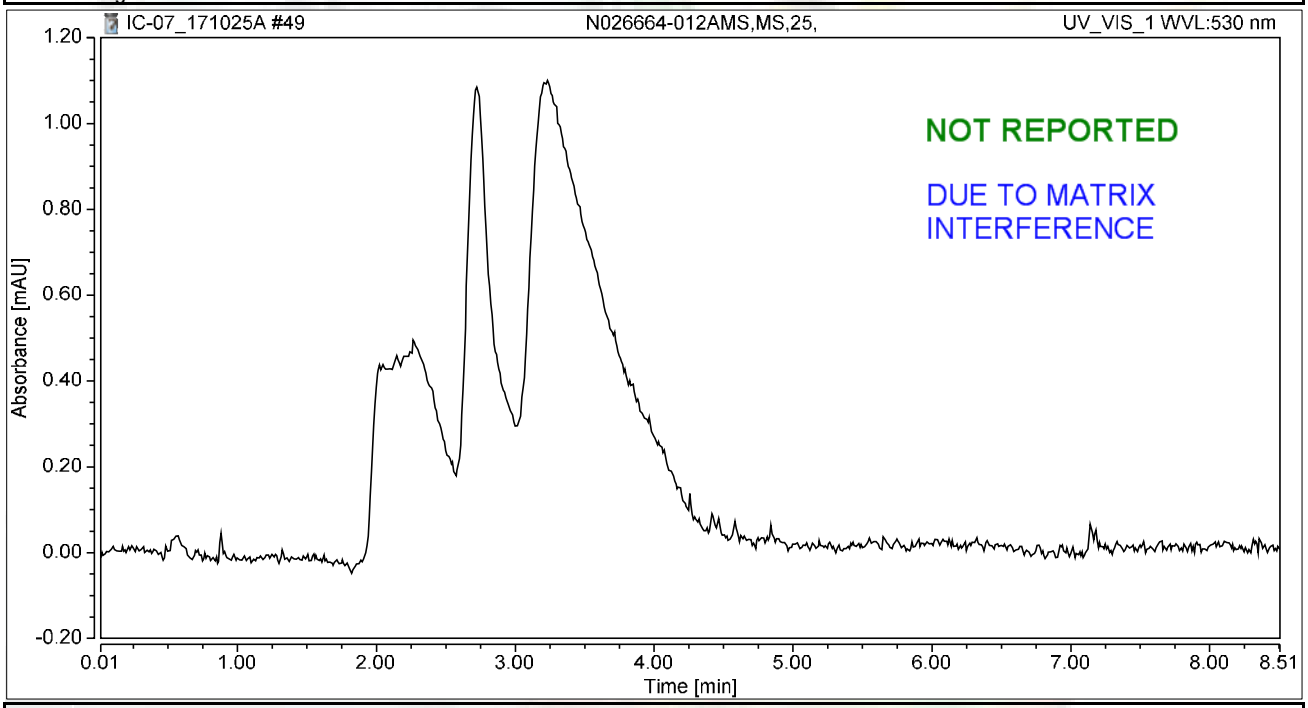
Chromatogram and Results

Injection Details

Injection Name:	**N026664-012AMS,MS,25,**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 09:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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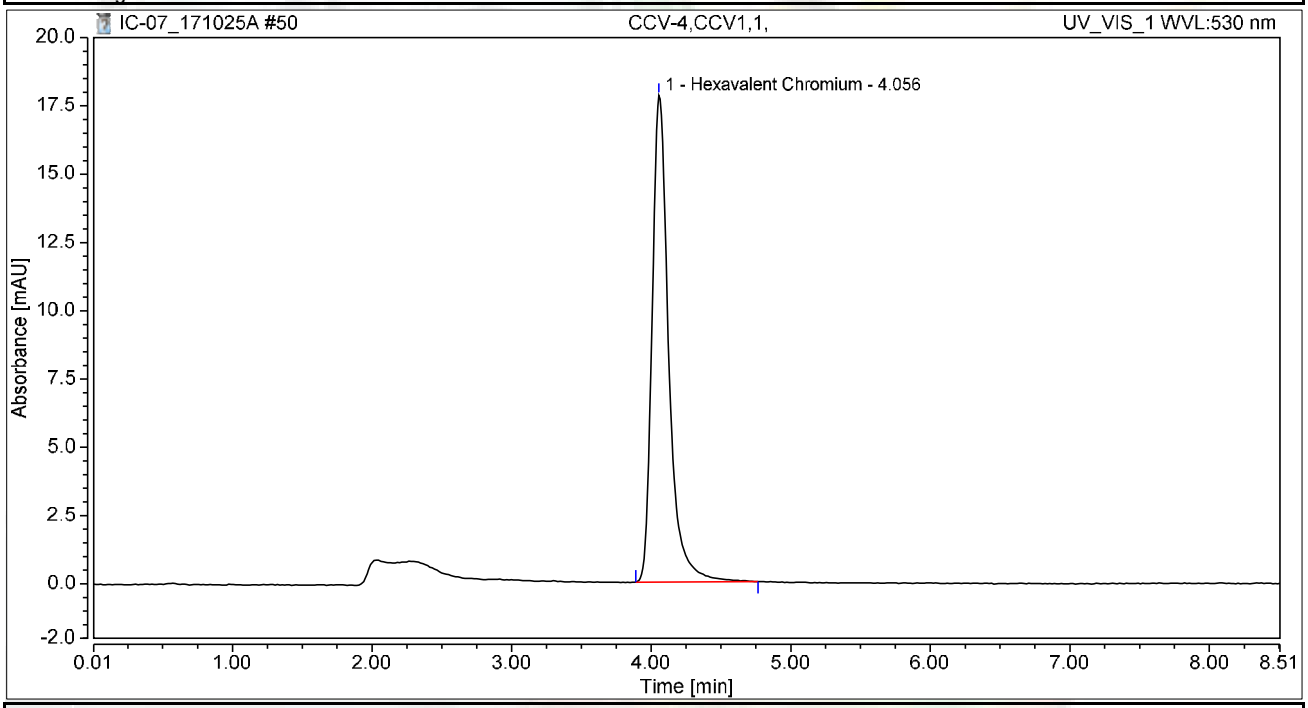
Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 09:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

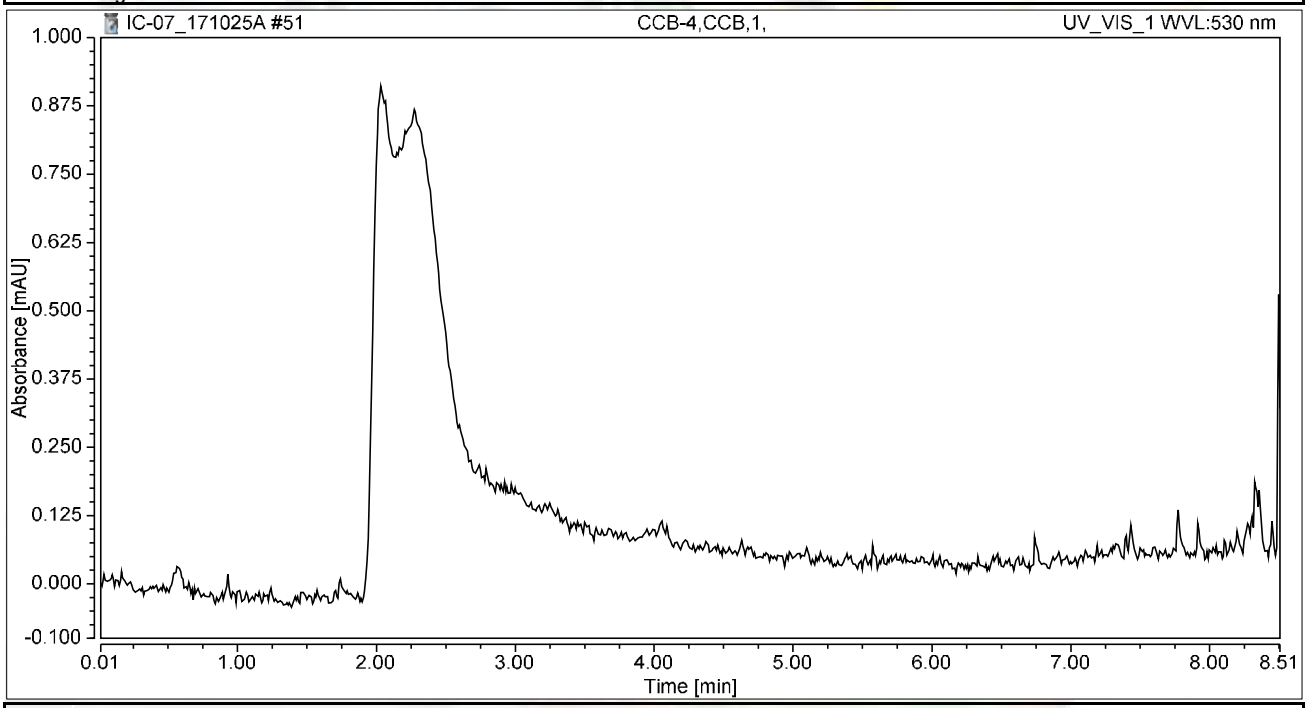
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.466	17.817	100.00	100.00	9.9752
Total:			**2.466**	**17.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

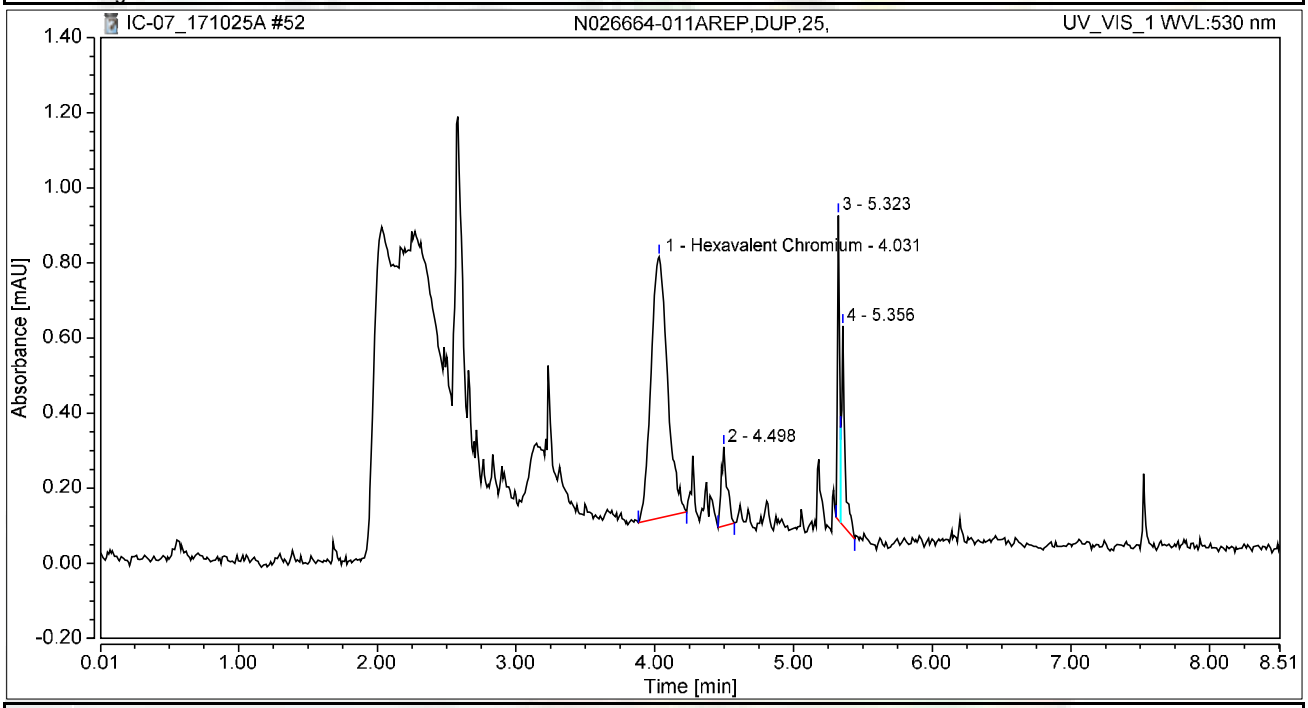
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-011AREP,DUP,25,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 10:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

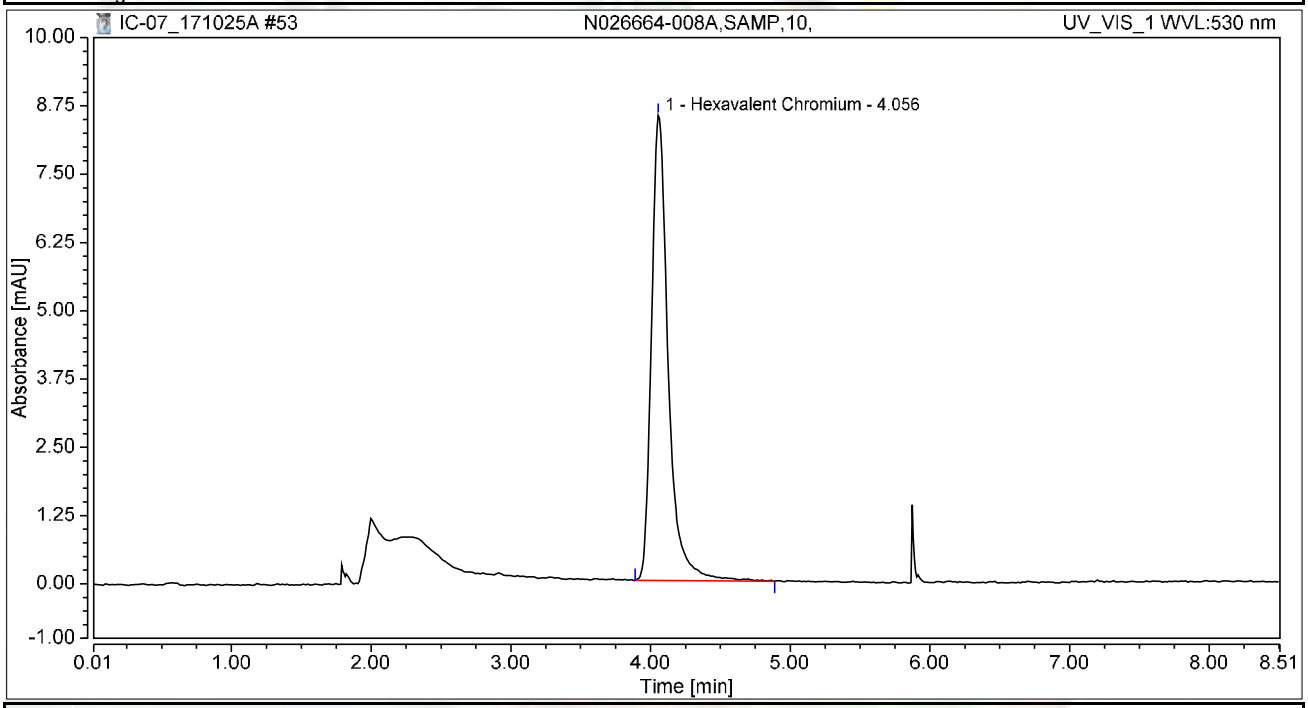
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.031	0.096	0.696	71.22	30.94	0.3865
2		4.498	0.010	0.210	7.31	9.35	n.a.
3		5.323	0.014	0.811	10.33	36.08	n.a.
4		5.356	0.015	0.531	11.13	23.62	n.a.
Total:			**0.134**	**2.248**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-008A,SAMP,10,**	*Run Time (min):*	**8.49**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 10:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

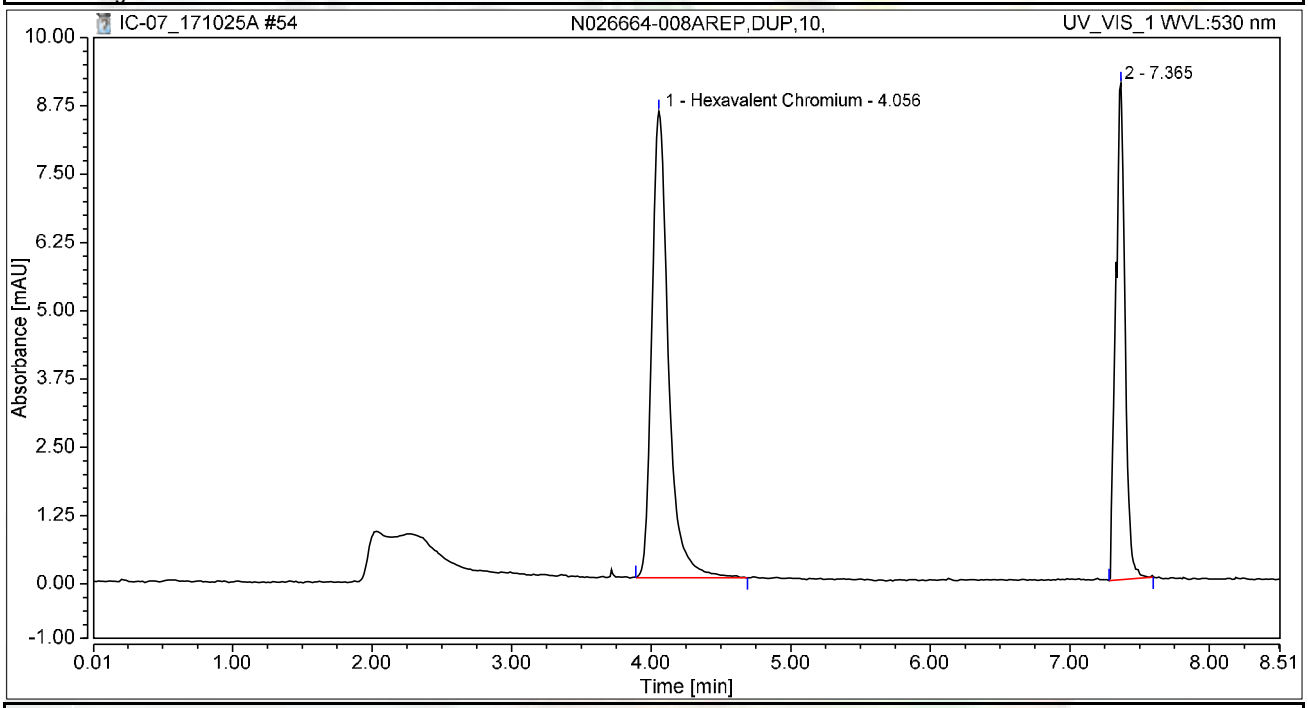
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.184	8.518	100.00	100.00	4.7913
Total:			**1.184**	**8.518**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-008AREP,DUP,10,**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 10:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

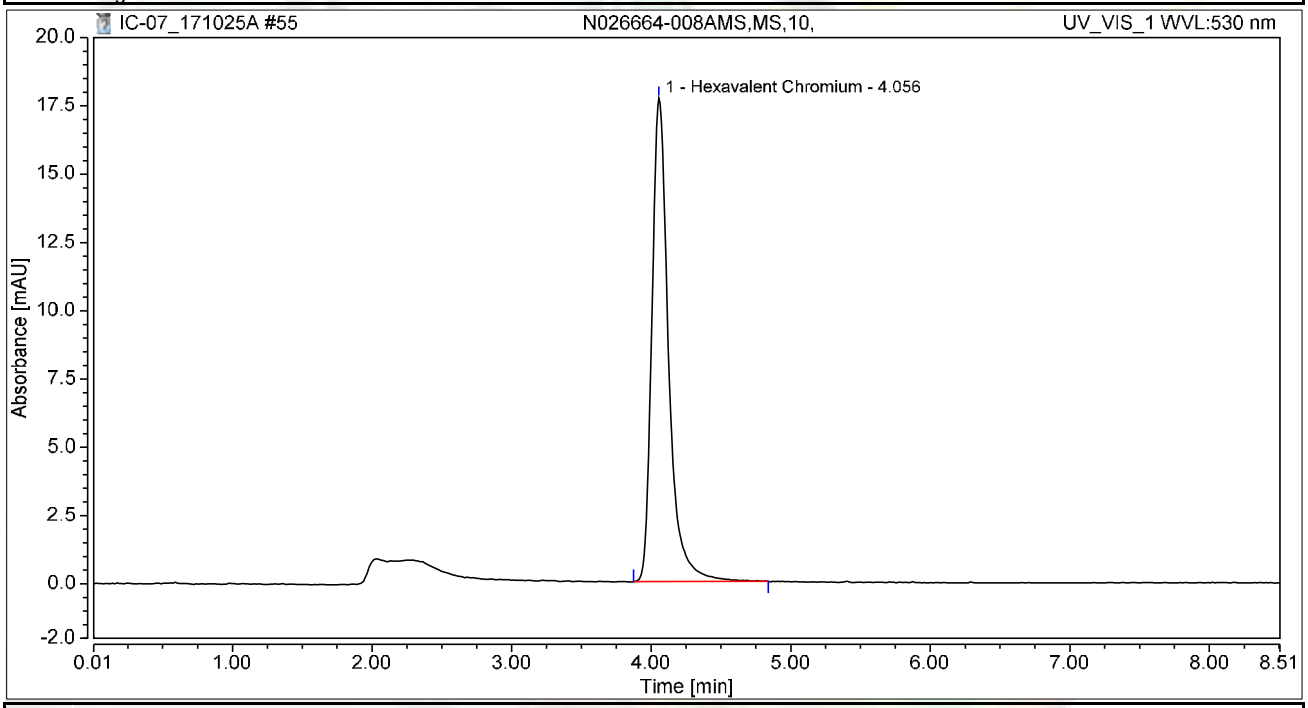
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.177	8.534	62.47	48.45	4.7605
2		7.365	0.707	9.081	37.53	51.55	n.a.
Total:			**1.884**	**17.615**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-008AMS,MS,10,**	*Run Time (min):*	**8.50**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

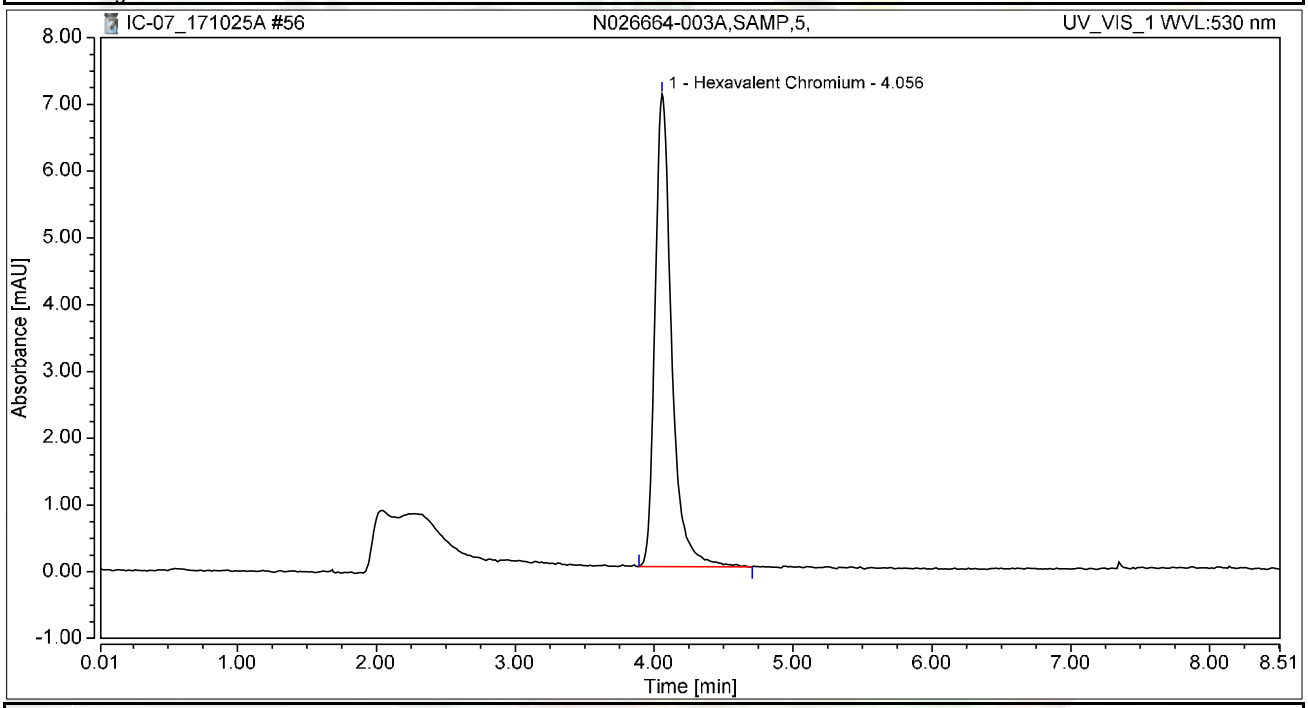
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.452	17.693	100.00	100.00	9.9181
Total:			**2.452**	**17.693**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-003A,SAMP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**46**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 10:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

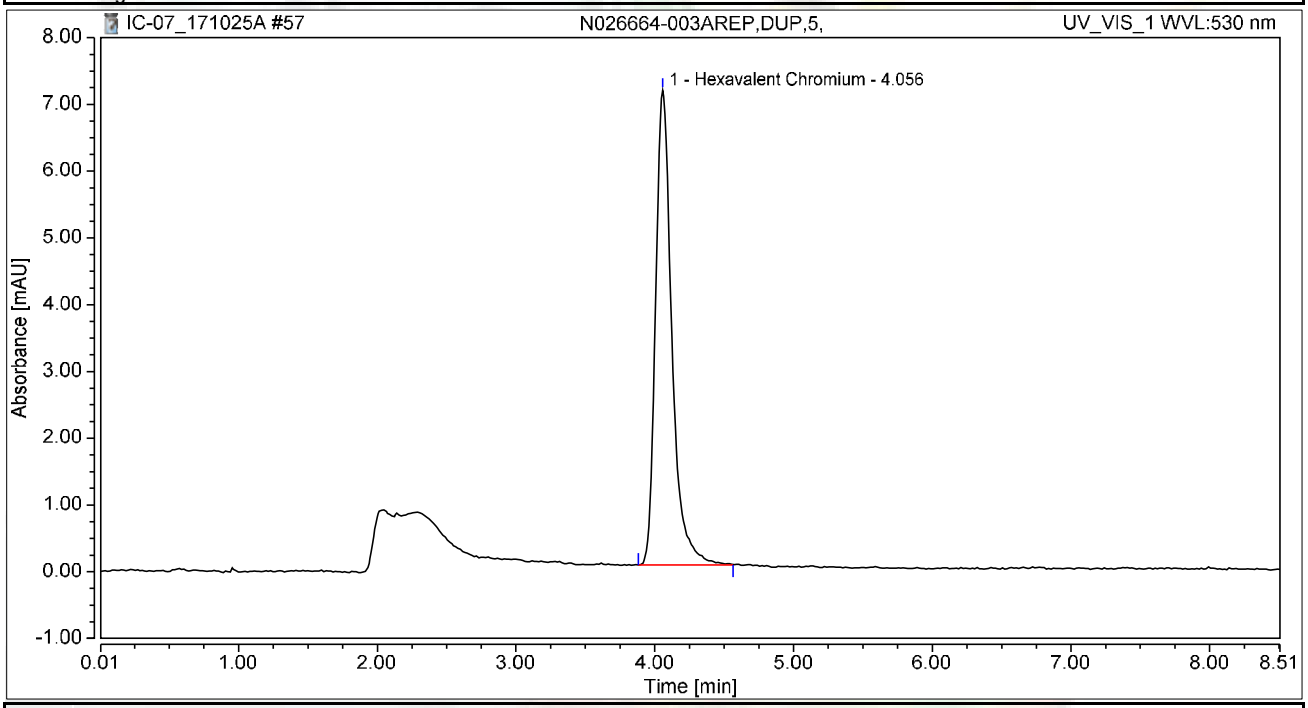
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.980	7.080	100.00	100.00	3.9636
Total:			**0.980**	**7.080**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-003AREP,DUP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**47**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 11:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

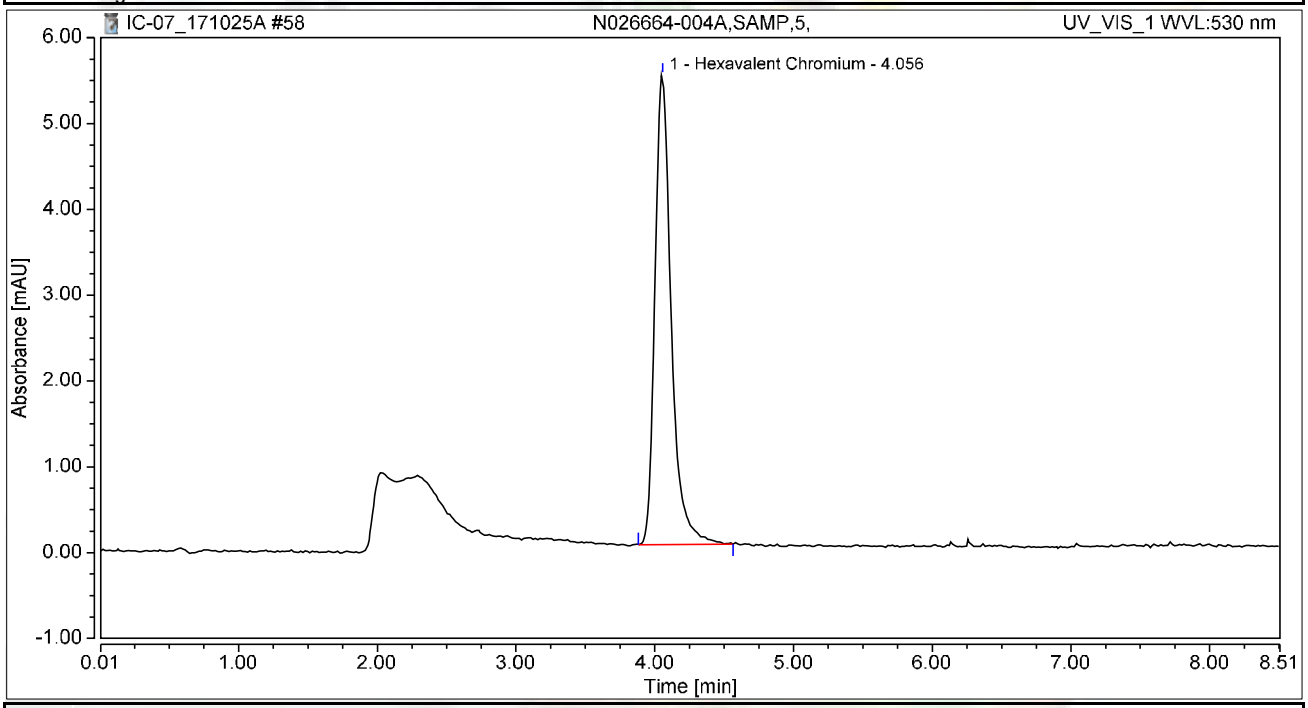
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.972	7.108	100.00	100.00	3.9314
Total:			**0.972**	**7.108**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-004A,SAMP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**48**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 11:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

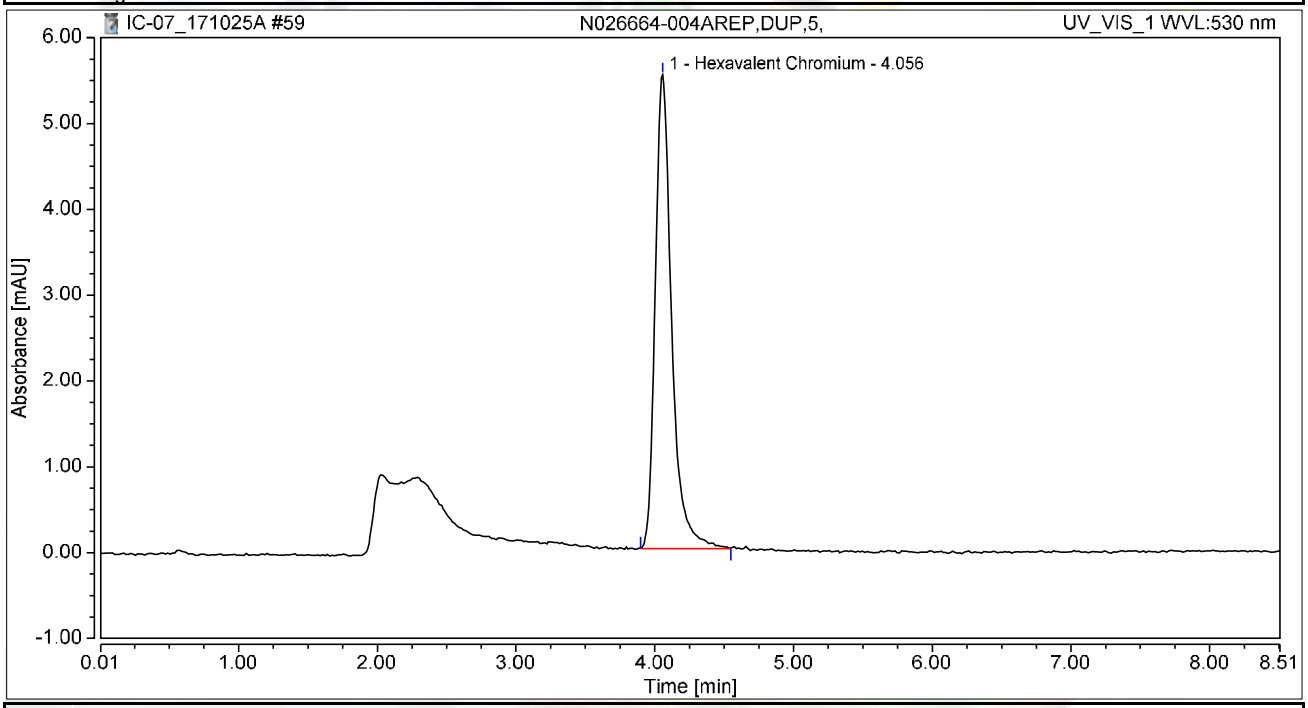
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.747	5.469	100.00	100.00	3.0214
Total:			**0.747**	**5.469**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-004AREP,DUP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**49**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

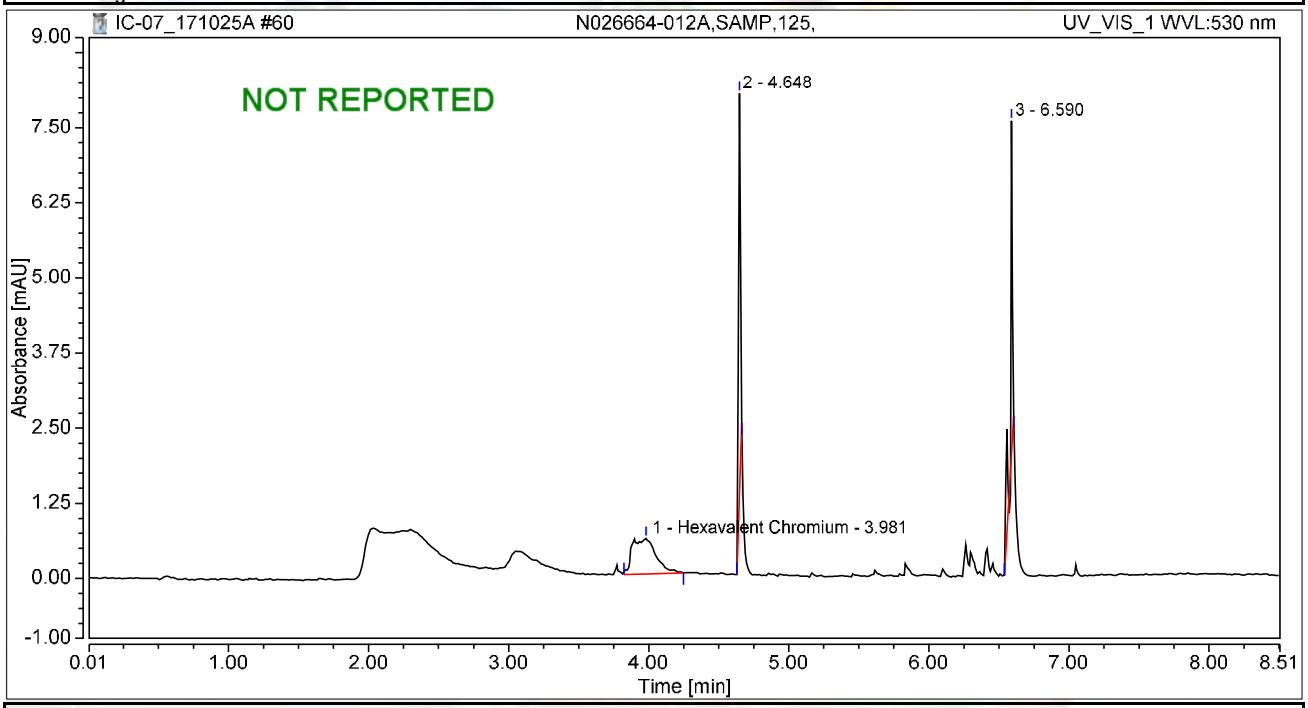
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.757	5.522	100.00	100.00	3.0633
Total:			**0.757**	**5.522**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-012A,SAMP,125,**	*Run Time (min):*	**8.50**
Vial Number:	**50**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 11:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

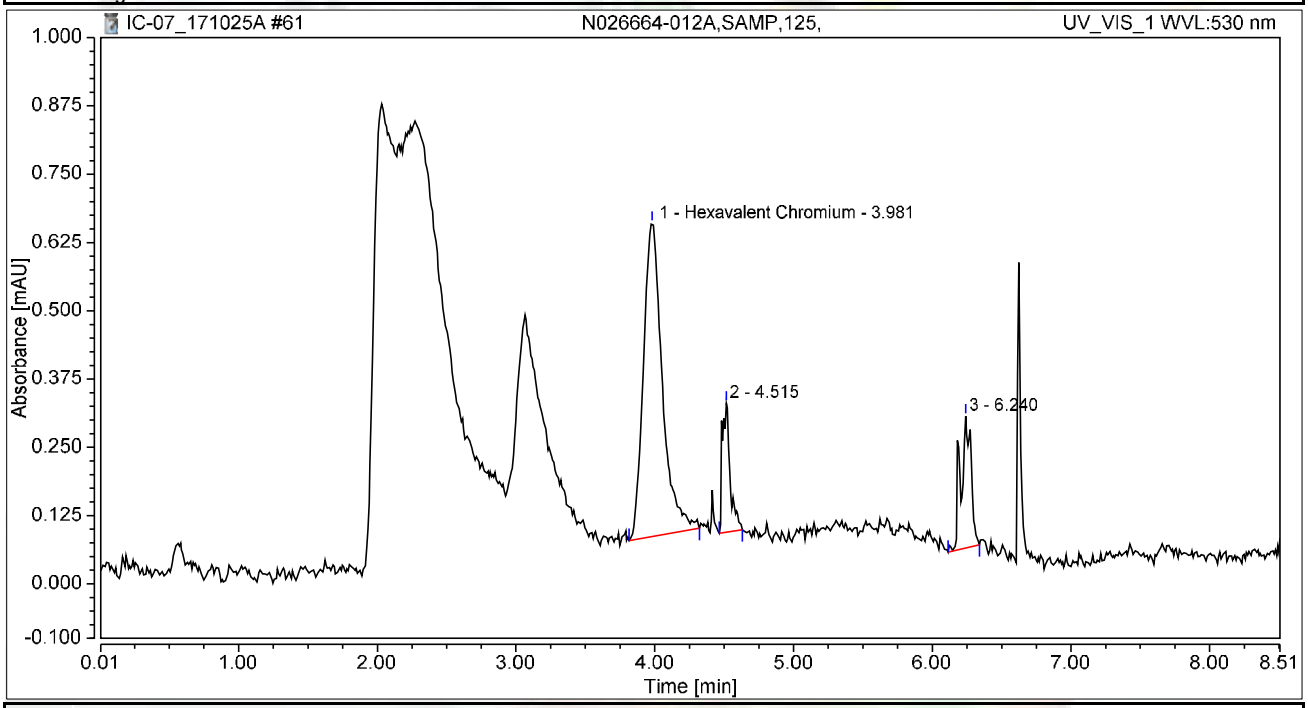
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.981	0.115	0.590	37.45	4.57	0.4670
2		4.648	0.104	6.747	33.60	52.26	n.a.
3		6.590	0.089	5.575	28.95	43.17	n.a.
Total:			**0.308**	**12.912**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-012A,SAMP,125,**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

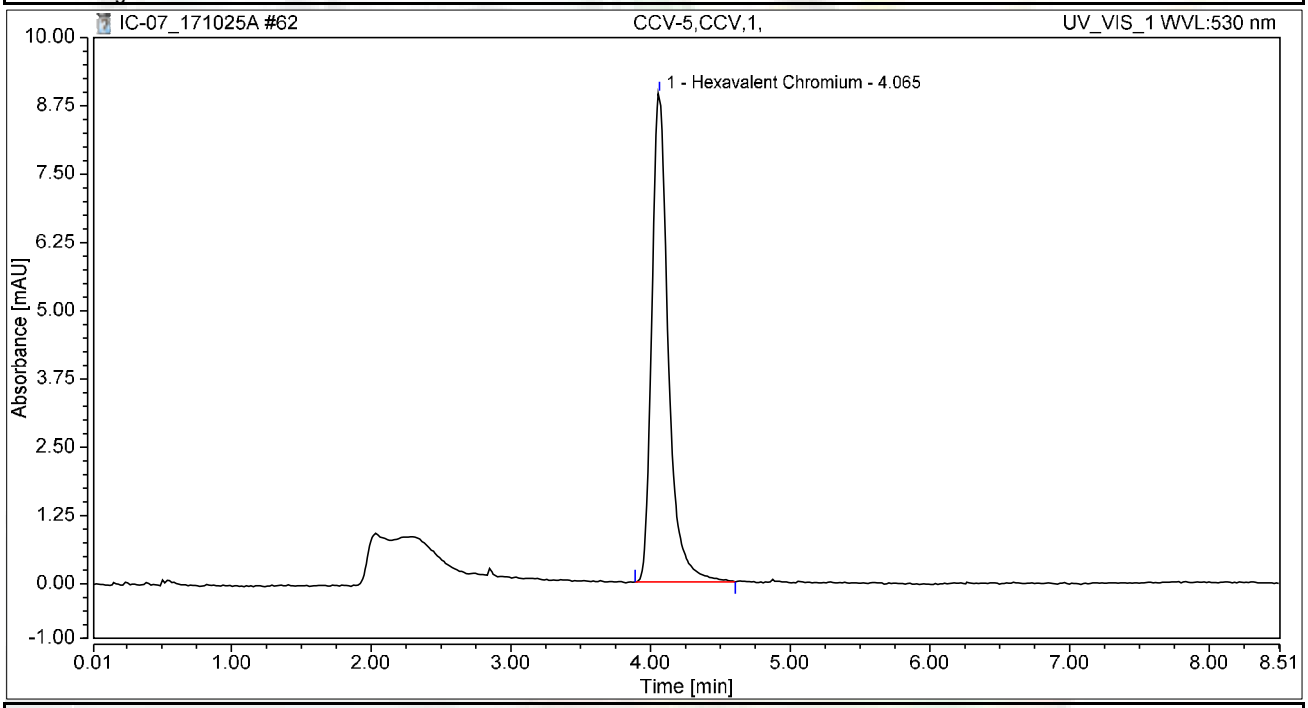
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.981	0.091	0.573	71.18	54.52	0.3668
2		4.515	0.016	0.236	12.29	22.48	n.a.
3		6.240	0.021	0.242	16.54	23.00	n.a.
Total:			**0.127**	**1.051**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

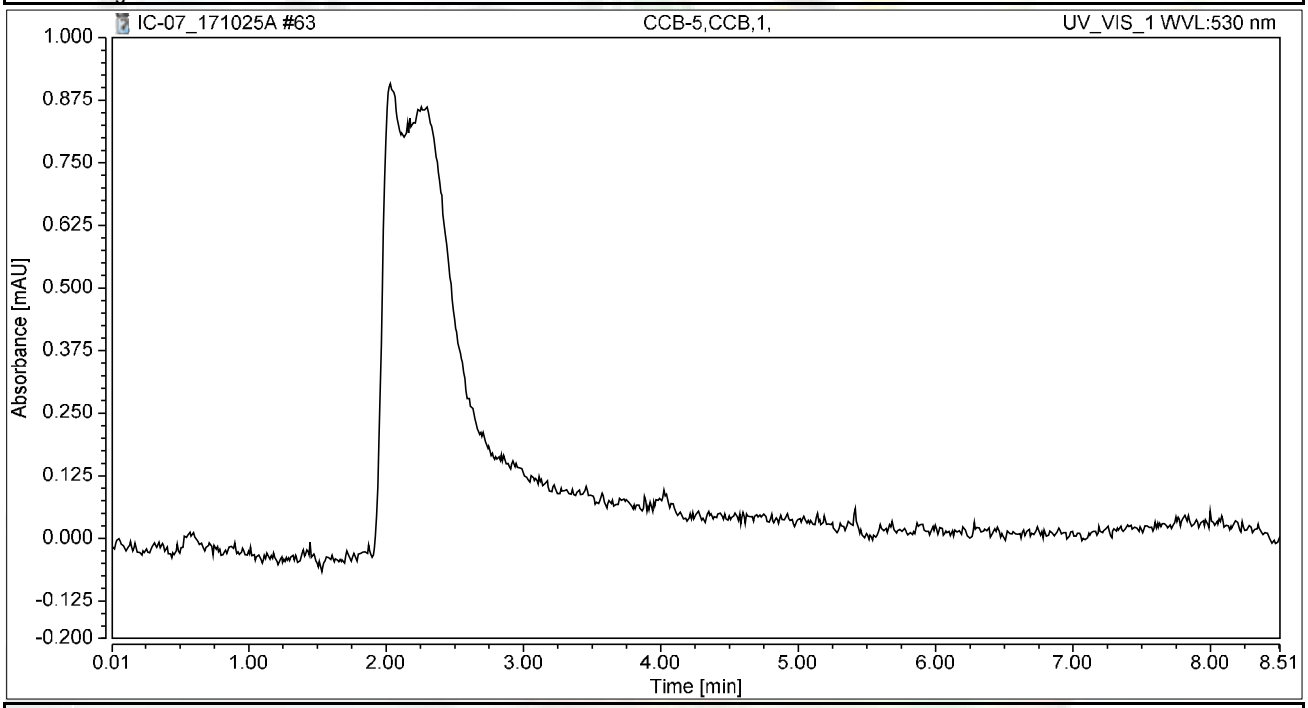
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.228	8.937	100.00	100.00	4.9673
Total:			**1.228**	**8.937**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

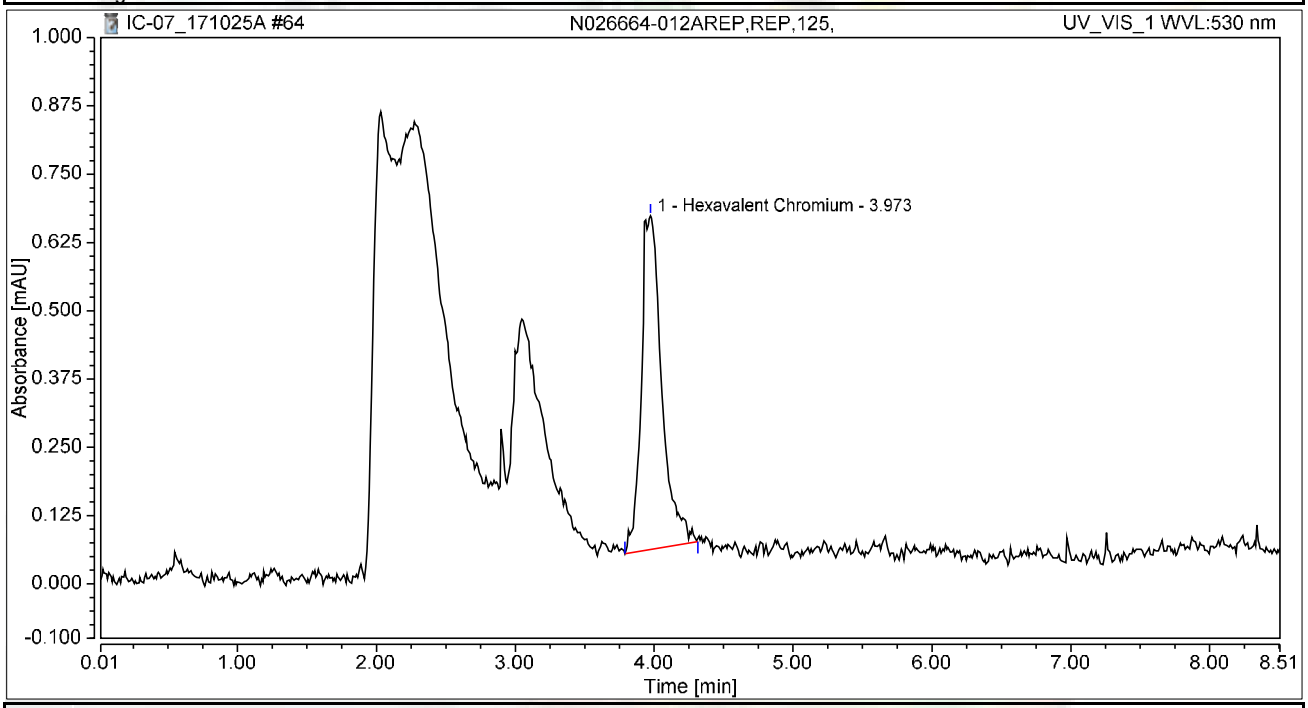
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-012AREP,REP,125,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

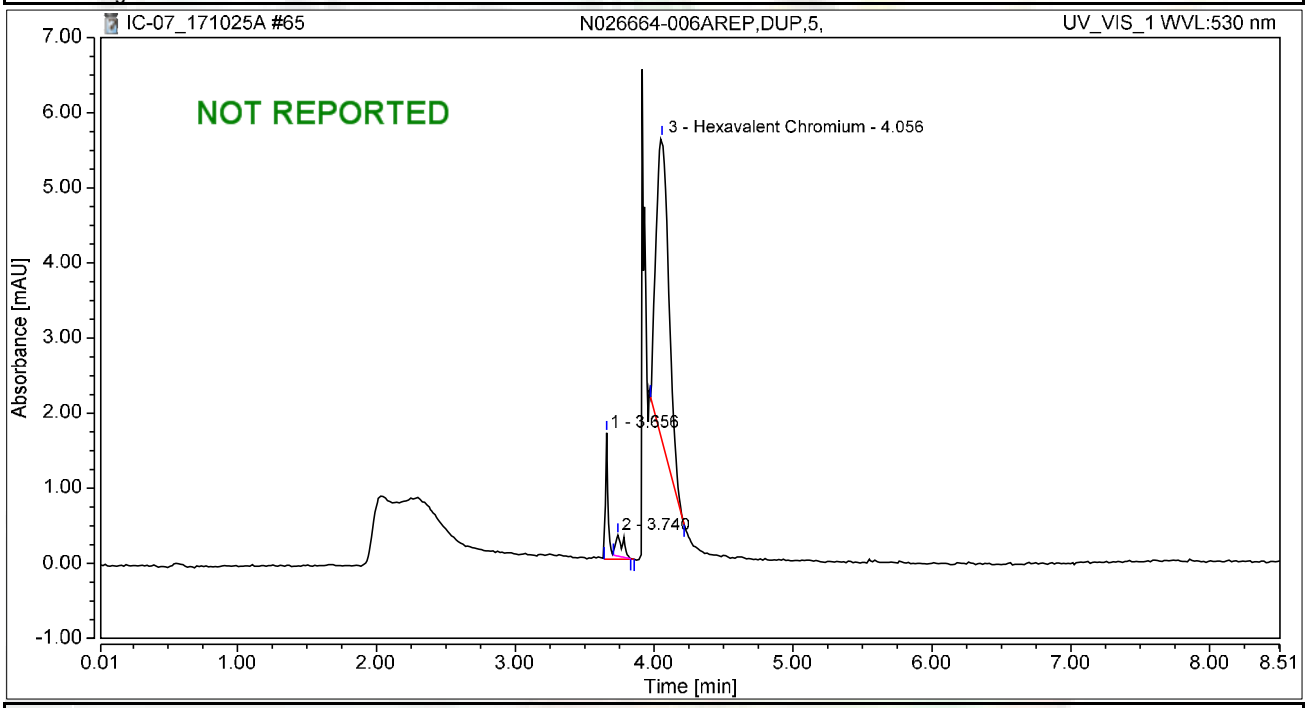
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.973	0.105	0.610	100.00	100.00	0.4235
Total:			**0.105**	**0.610**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-006AREP,DUP,5,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

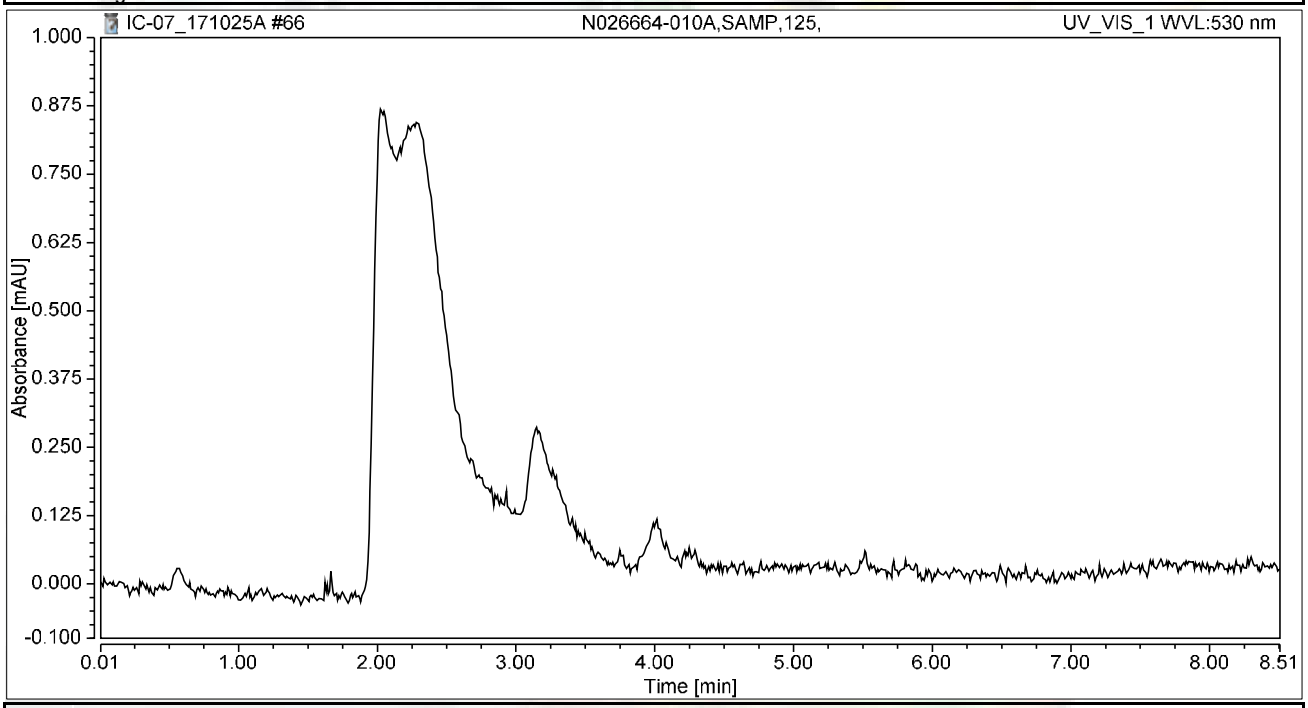
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.656	0.039	1.684	8.00	28.07	n.a.
2		3.740	0.017	0.279	3.54	4.65	n.a.
3	Hexavalent Chromium	4.056	0.433	4.036	88.46	67.27	1.7499
Total:			**0.489**	**6.000**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-010A,SAMP,125,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

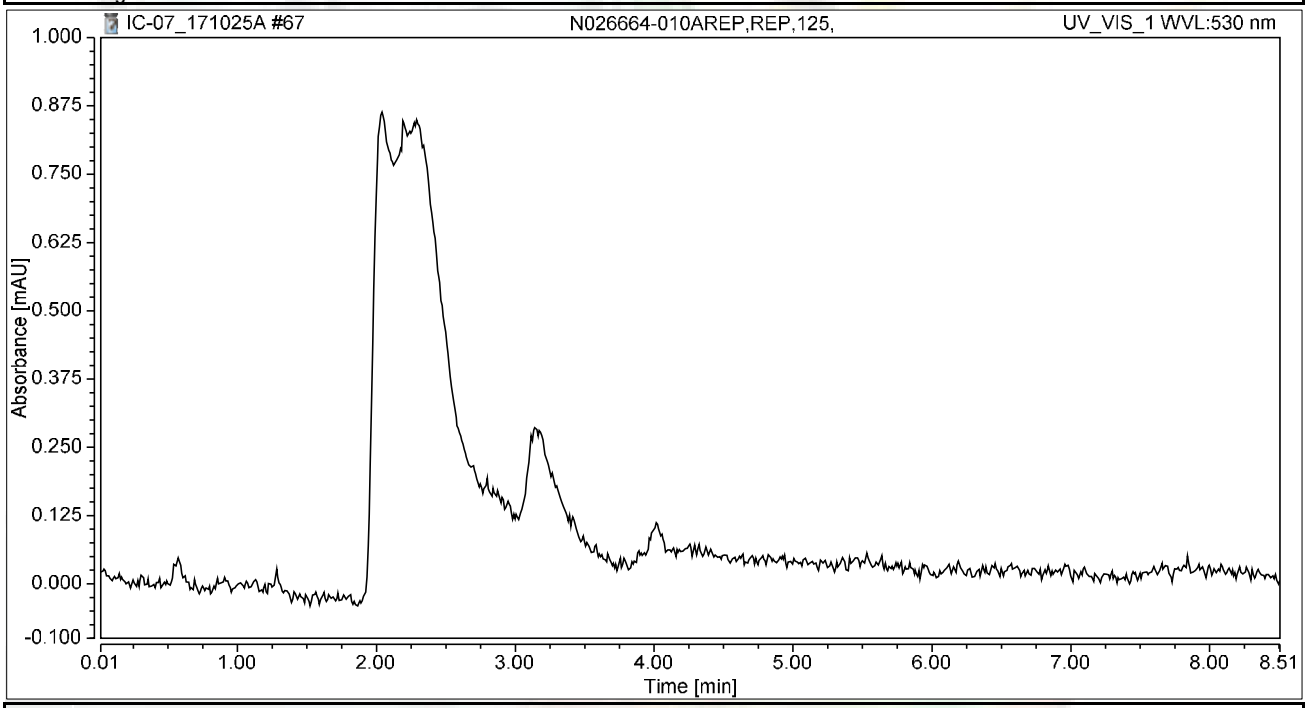
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-010AREP,REP,125,**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

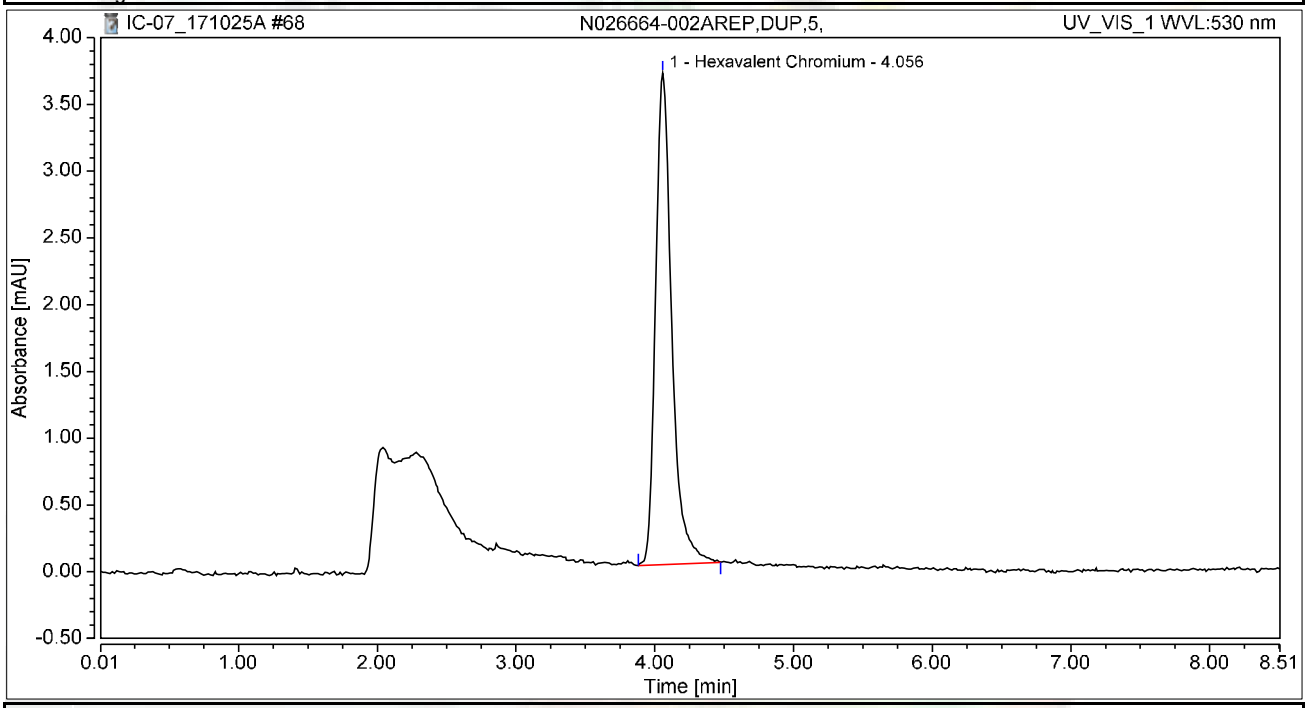
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-002AREP,DUP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

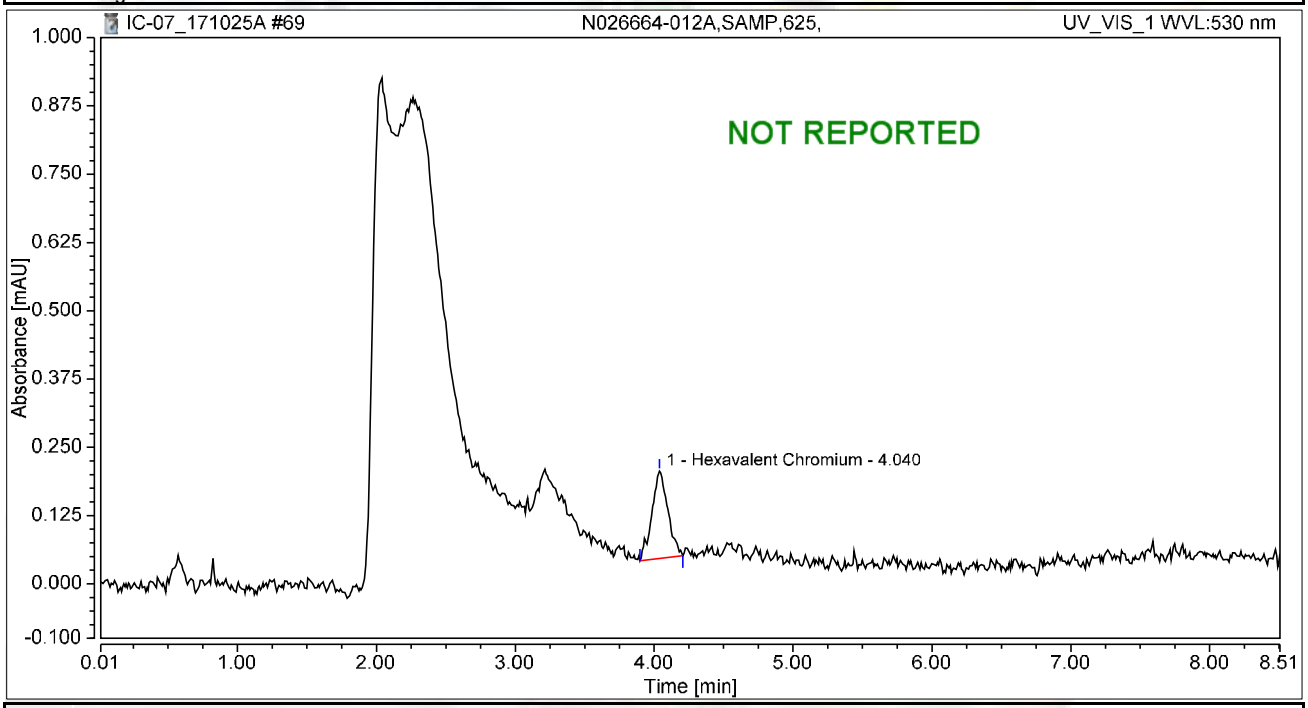
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.500	3.682	100.00	100.00	2.0214
Total:			**0.500**	**3.682**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-012A,SAMP,625,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 12:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

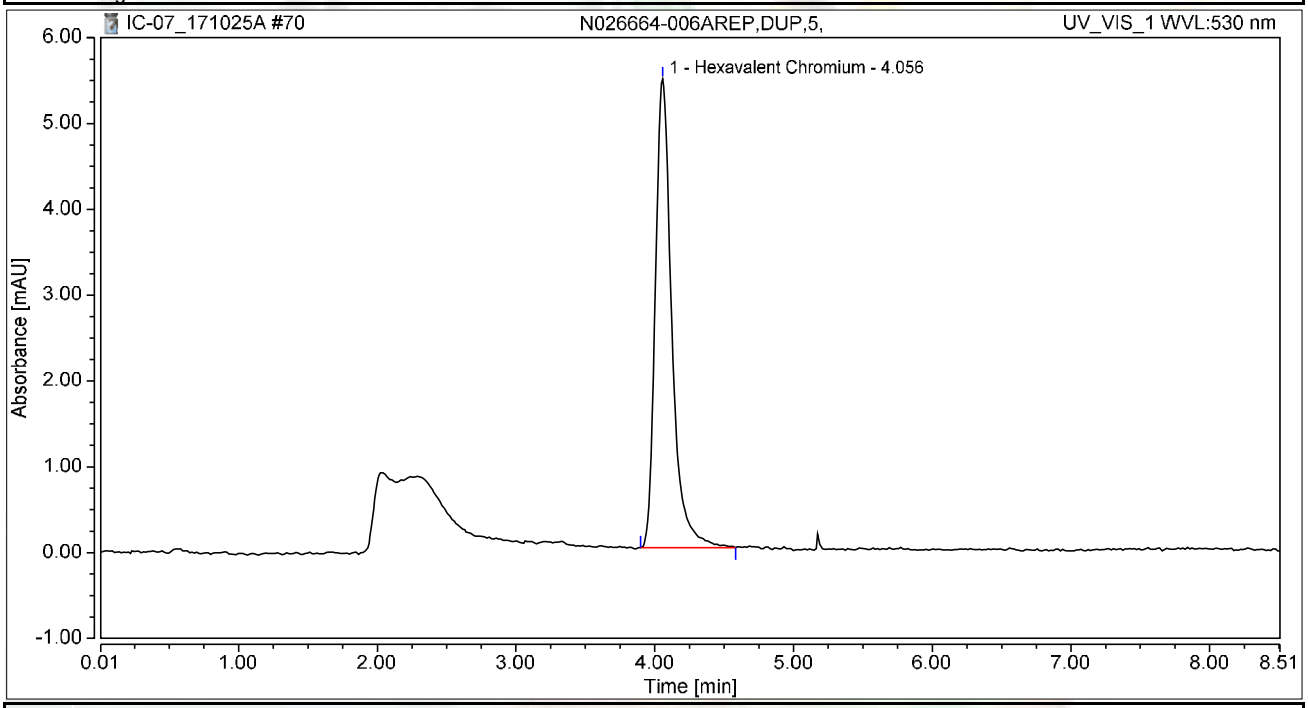
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.040	0.021	0.160	100.00	100.00	0.0868
Total:			**0.021**	**0.160**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-006AREP,DUP,5,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

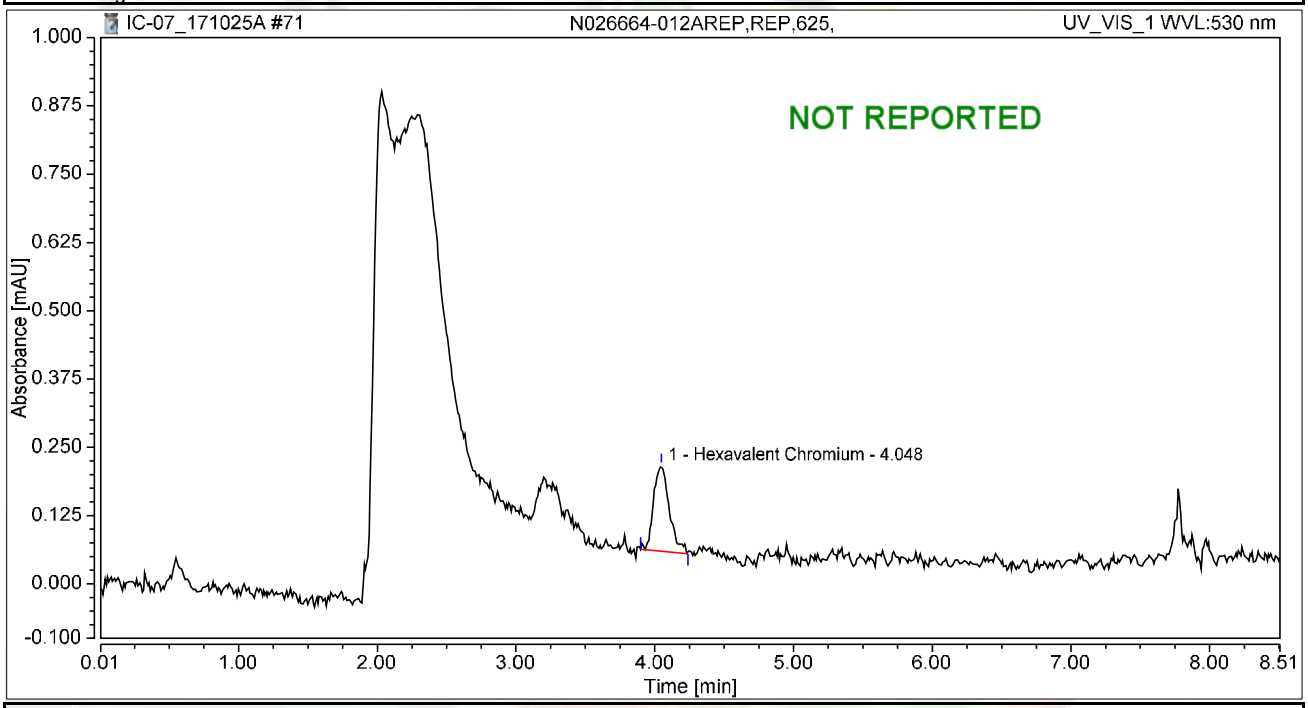
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.752	5.461	100.00	100.00	3.0435
Total:			**0.752**	**5.461**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-012AREP,REP,625,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

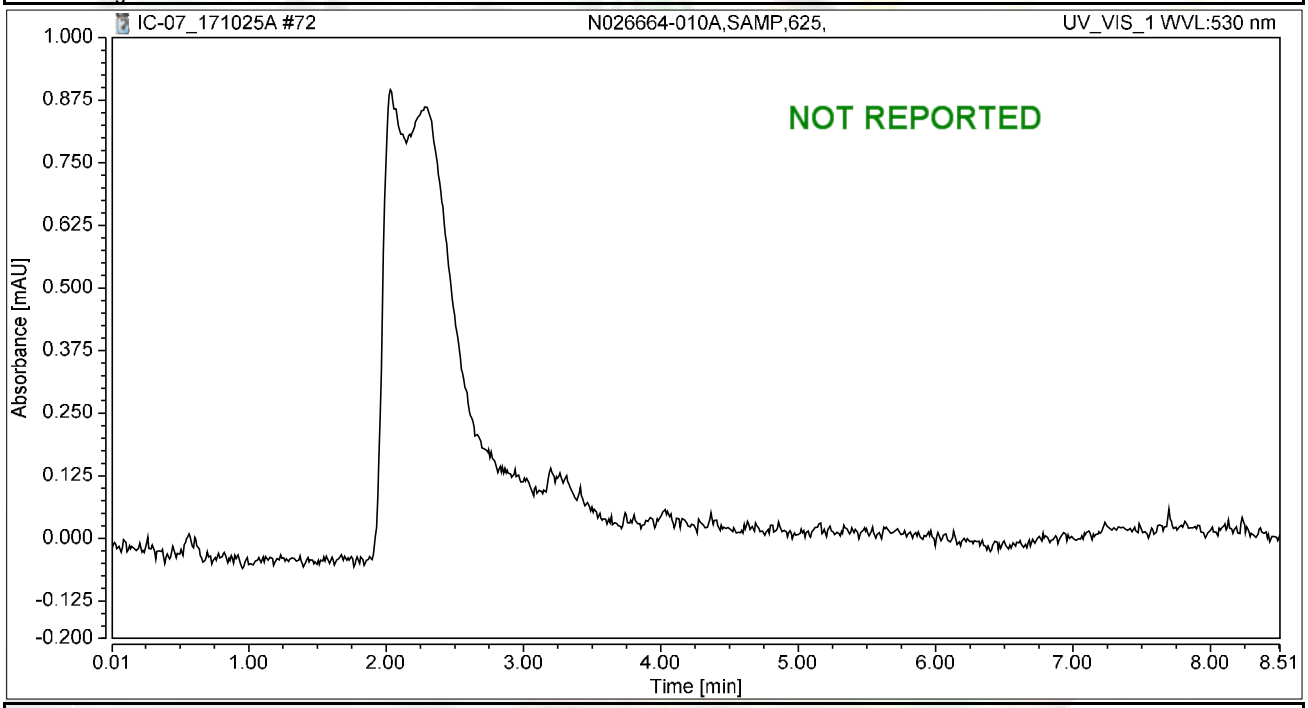
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.048	0.021	0.157	100.00	100.00	0.0830
Total:			**0.021**	**0.157**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-010A,SAMP,625,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

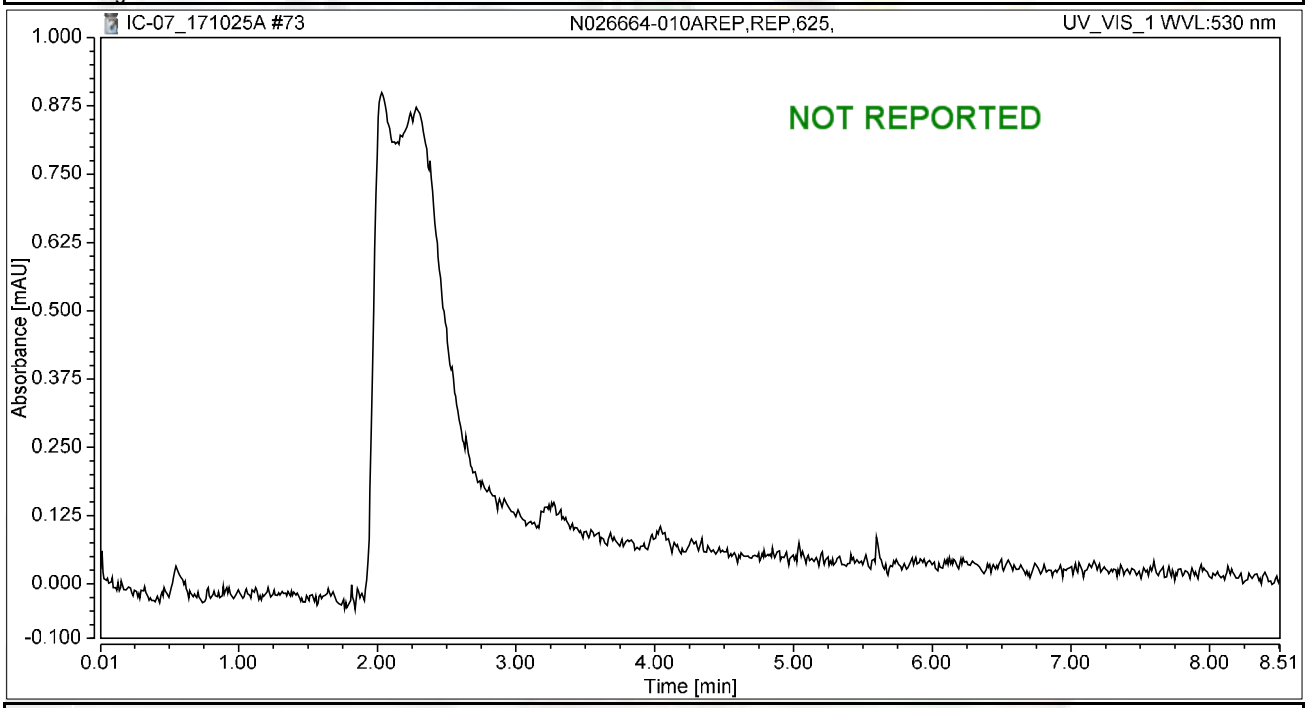
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-010AREP,REP,625,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

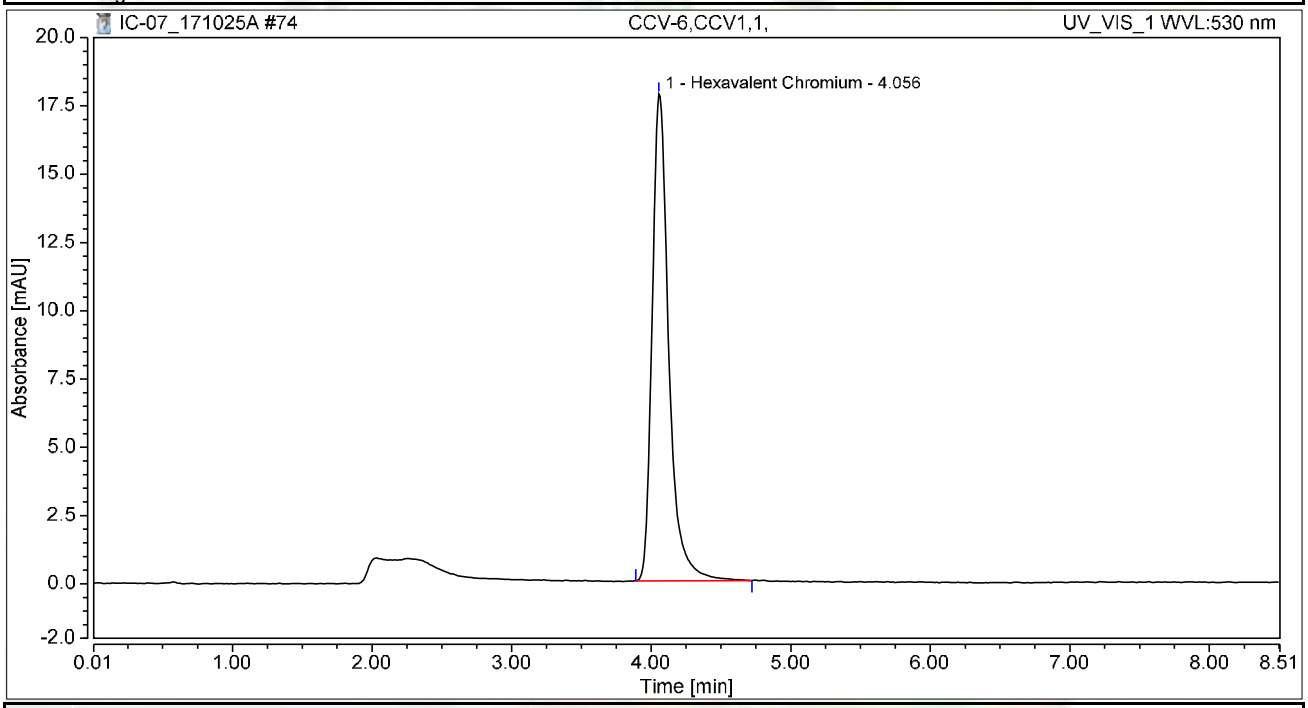
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

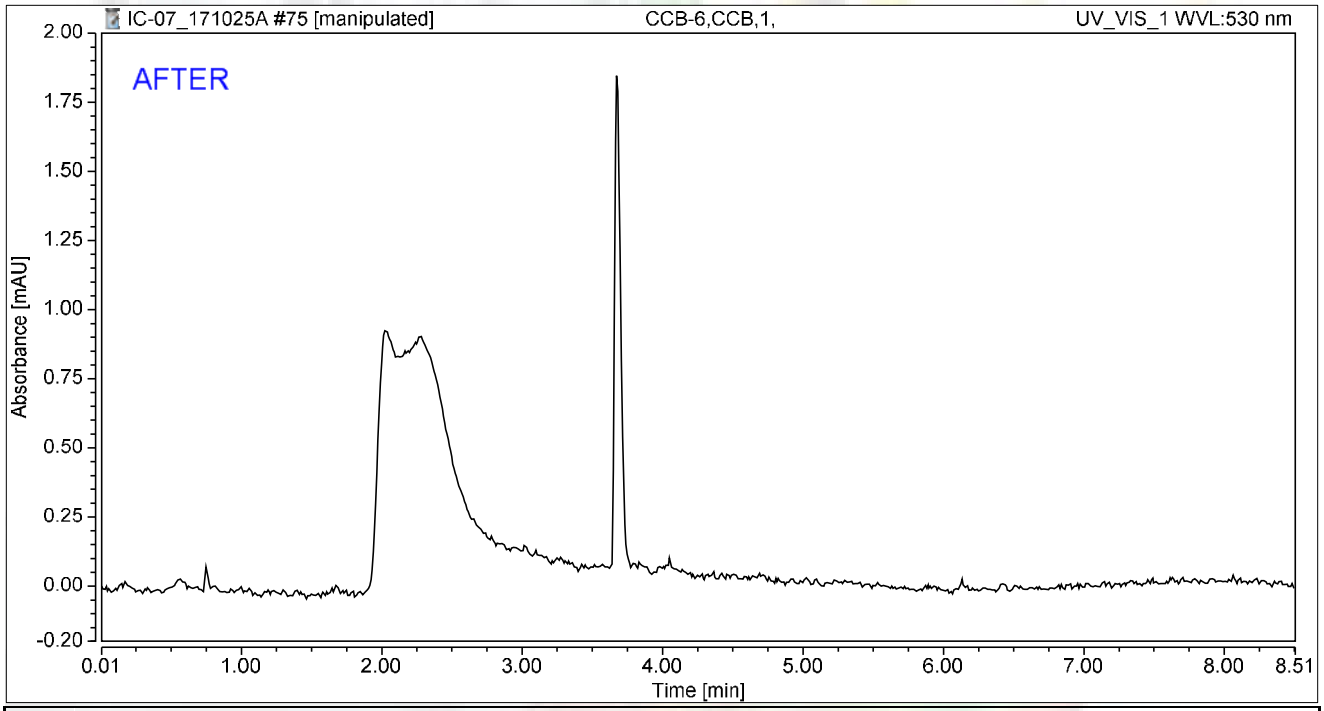
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.470	17.826	100.00	100.00	9.9904
Total:			**2.470**	**17.826**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

rba 10/29/2017

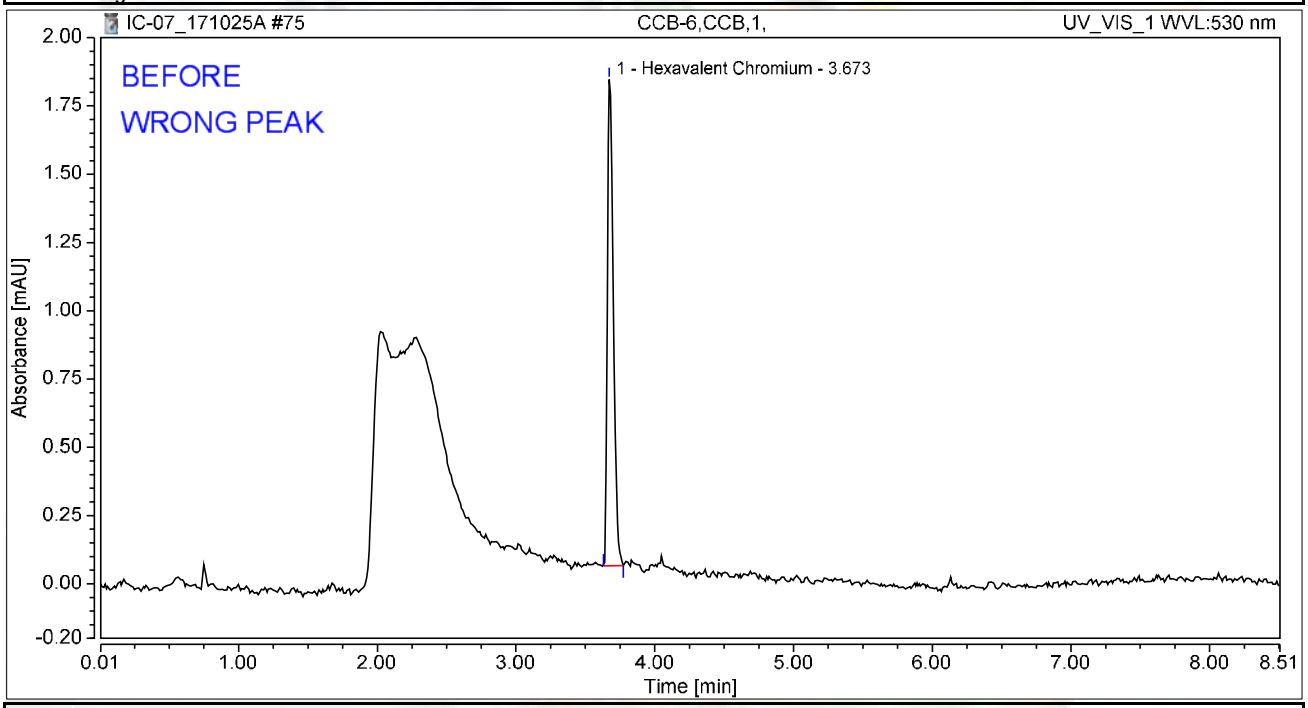
Reviewed by: Nancy 11/8/2017

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.673	0.090	1.781	100.00	100.00	0.3635
Total:			**0.090**	**1.781**	**100.00**	**100.00**	

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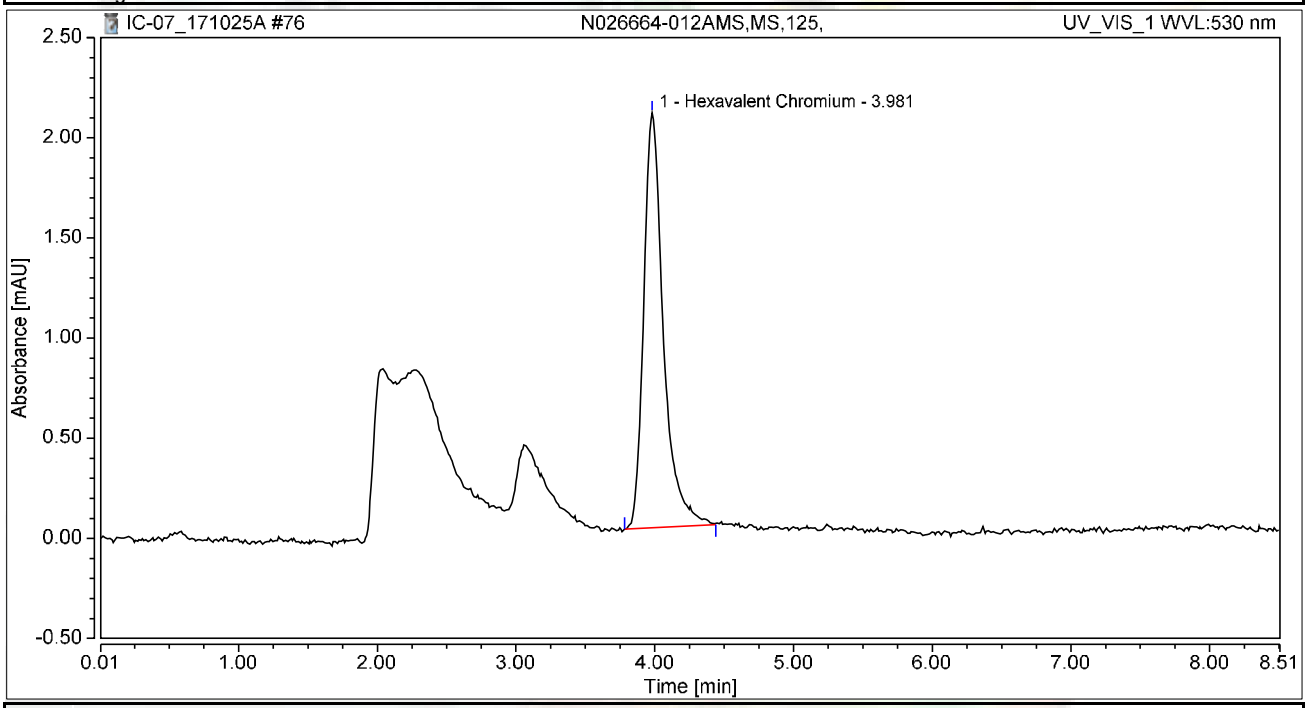
Chromatogram and Results

Injection Details

Injection Name:	**N026664-012AMS,MS,125,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

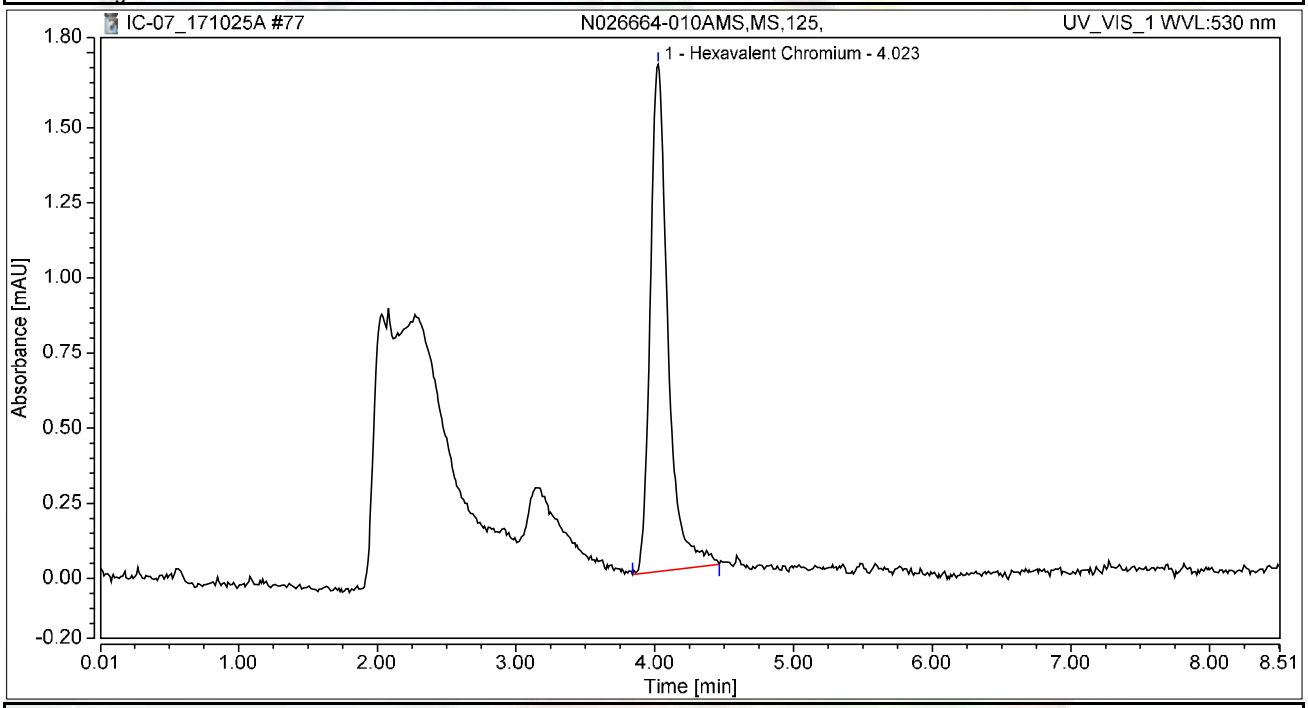
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	3.981	0.340	2.072	100.00	100.00	1.3749
Total:			**0.340**	**2.072**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-010AMS,MS,125,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

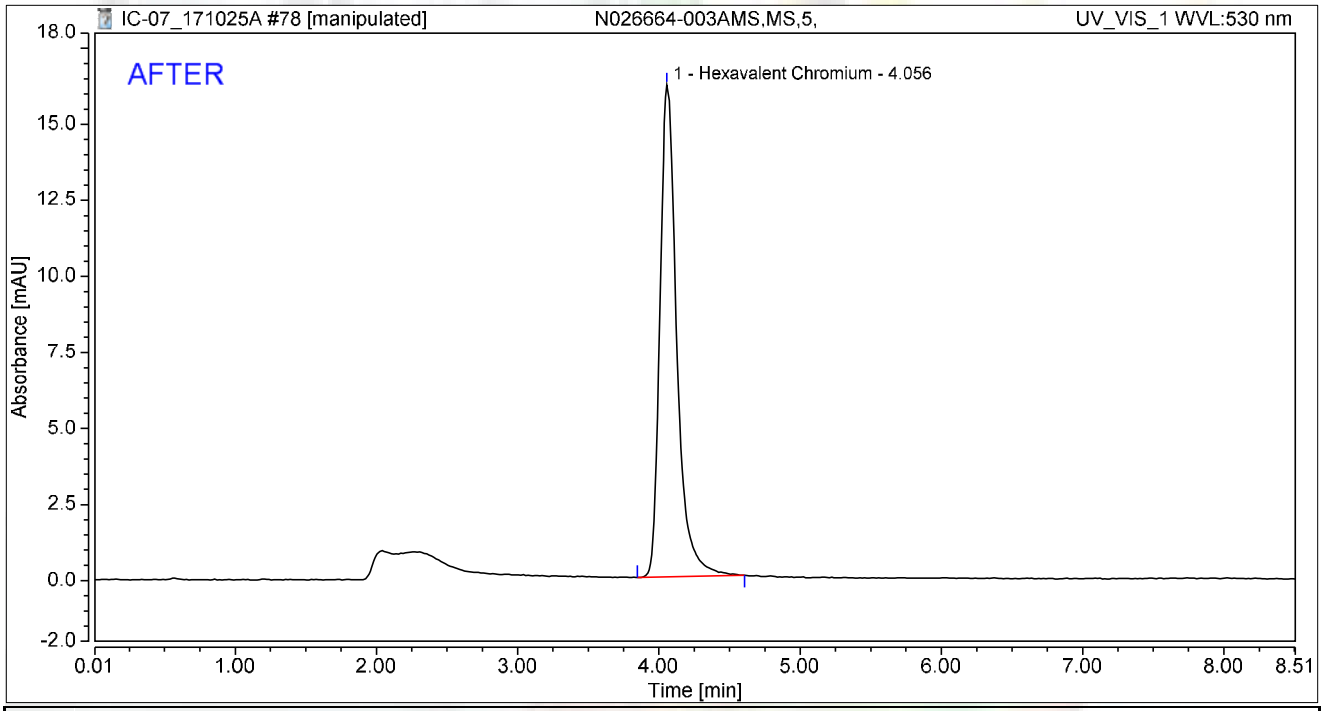
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.023	0.250	1.689	100.00	100.00	1.0126
Total:			**0.250**	**1.689**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.235	16.175	100.00	100.00	9.0415
Total:			**2.235**	**16.175**	**100.00**	**100.00**	

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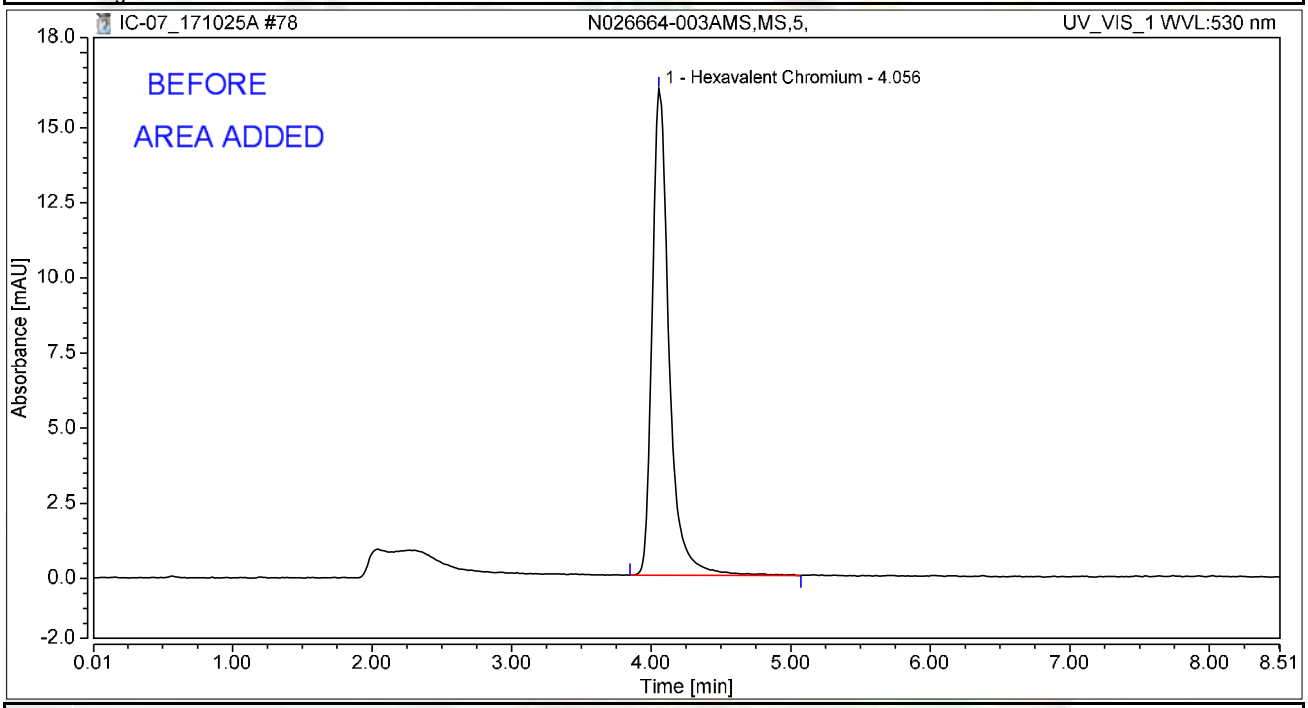
Chromatogram and Results

Injection Details

Injection Name:	**N026664-003AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.281	16.196	100.00	100.00	9.2294
Total:			**2.281**	**16.196**	**100.00**	**100.00**	

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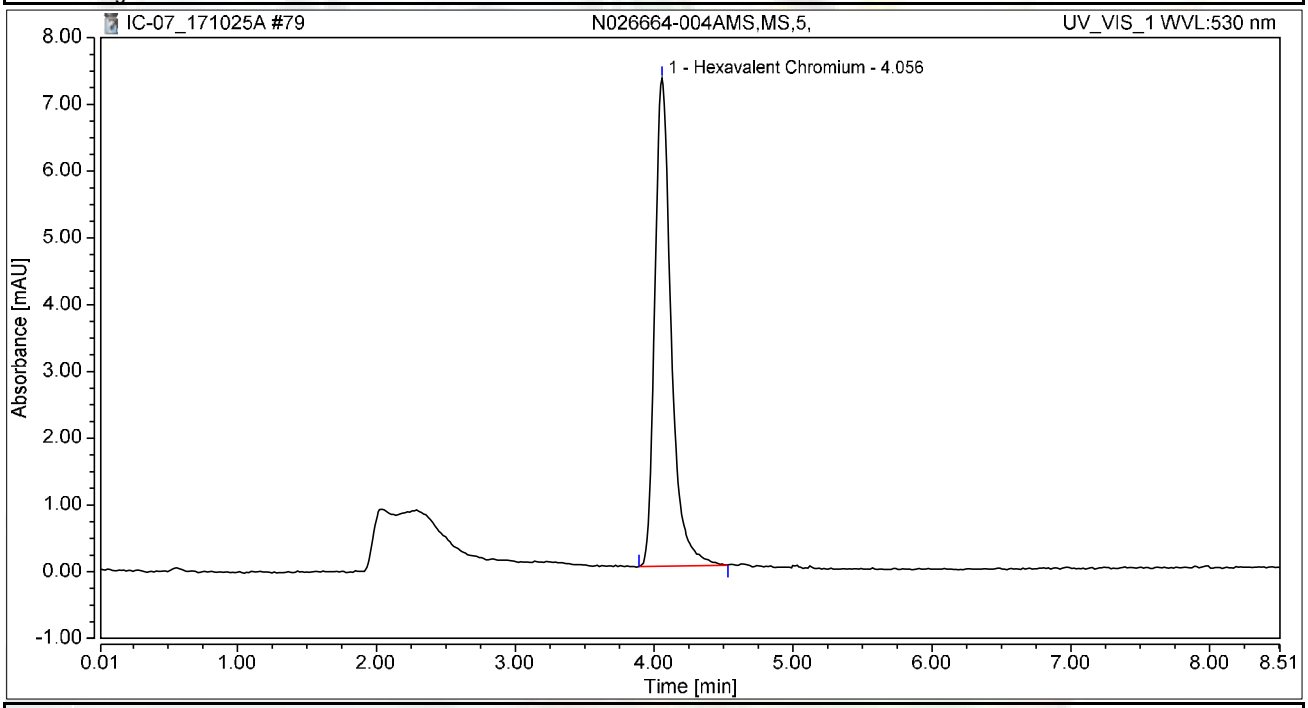
Chromatogram and Results

Injection Details

Injection Name:	**N026664-004AMS,MS,5,**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

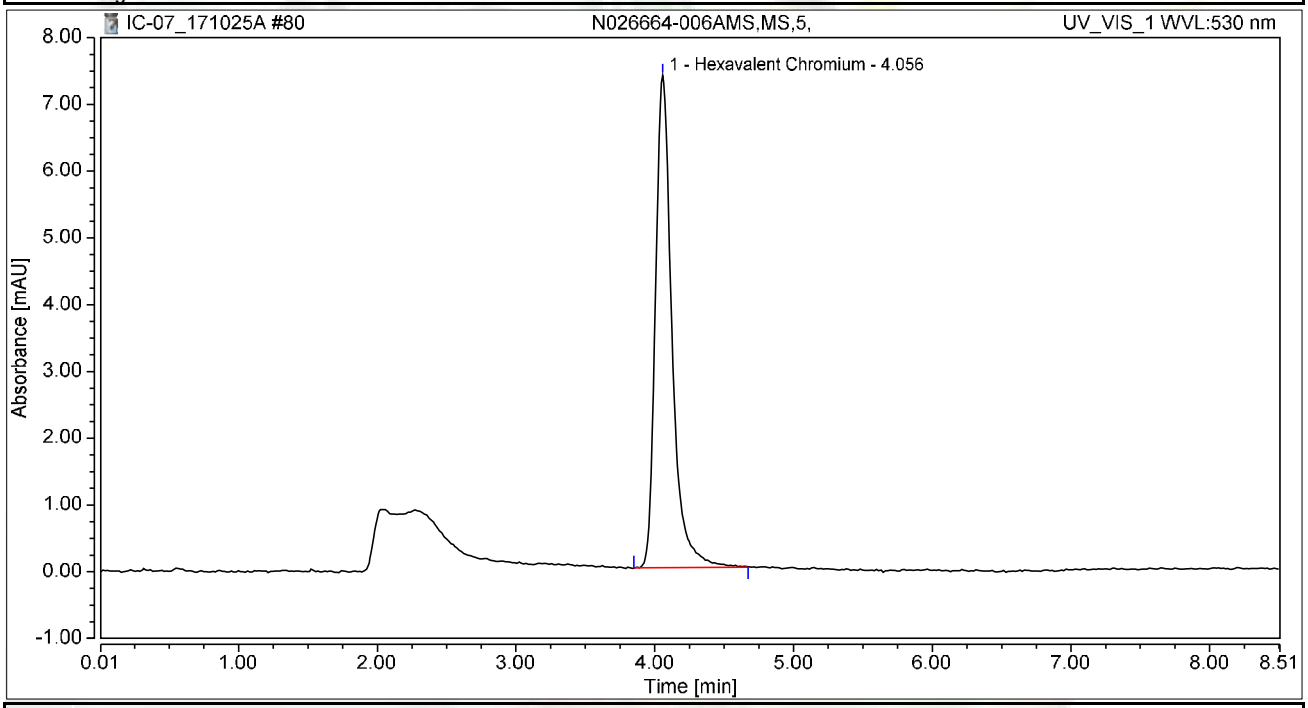
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.000	7.308	100.00	100.00	4.0466
Total:			**1.000**	**7.308**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-006AMS,MS,5,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

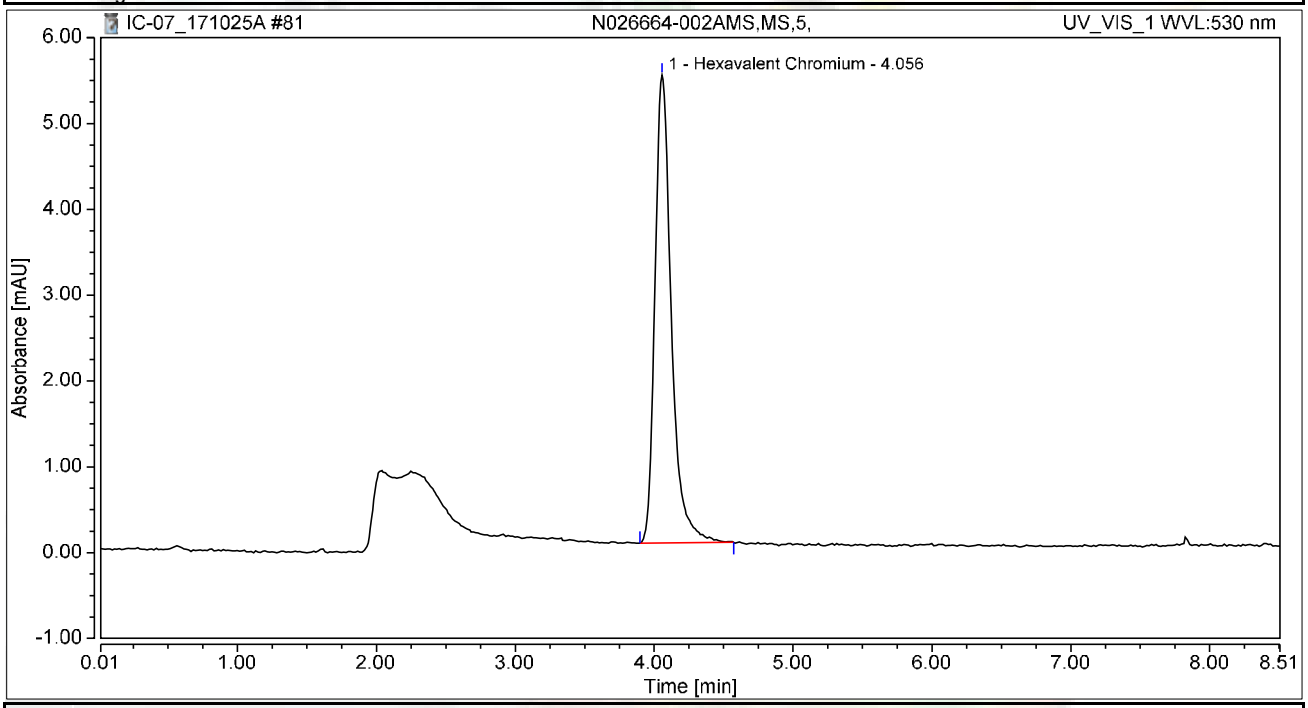
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.020	7.371	100.00	100.00	4.1273
Total:			**1.020**	**7.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026664-002AMS,MS,5,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 14:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.744	5.452	100.00	100.00	3.0110
Total:			**0.744**	**5.452**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026665-001A,SAMP,20,**	*Run Time (min):*	**n.a.**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**n.a.**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:01**	*Sample Weight:*	**1.0000**

Chromatogram

Can't read channel UV_VIS_1 from injection #82 - N026665-001A,SAMP,20,.
Channel is not available.

NOT REPORTED

NO SAMPLE IN VIAL

Integration Results

No.	Peak Name	Retention Time min	Area n.a.	Height n.a.	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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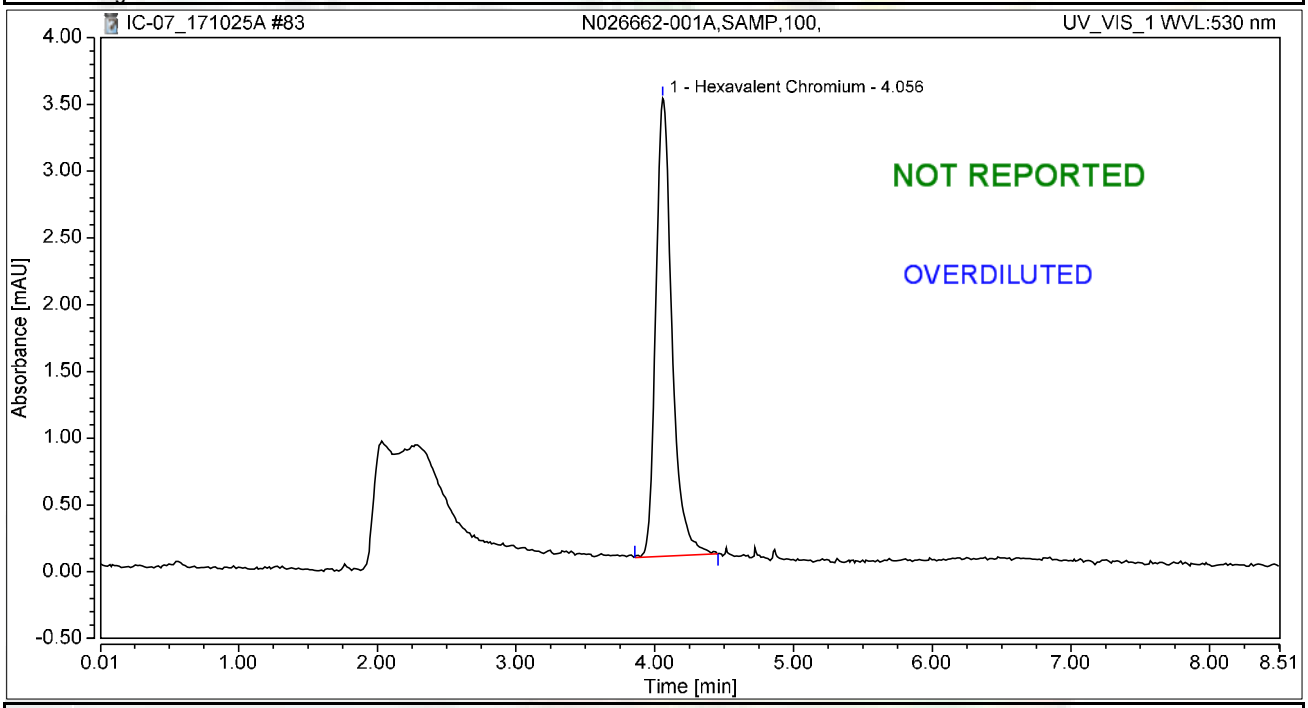
Chromatogram and Results

Injection Details

Injection Name:	**N026662-001A,SAMP,100,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	0.465	3.429	100.00	100.00	1.8792
Total:			**0.465**	**3.429**	**100.00**	**100.00**	

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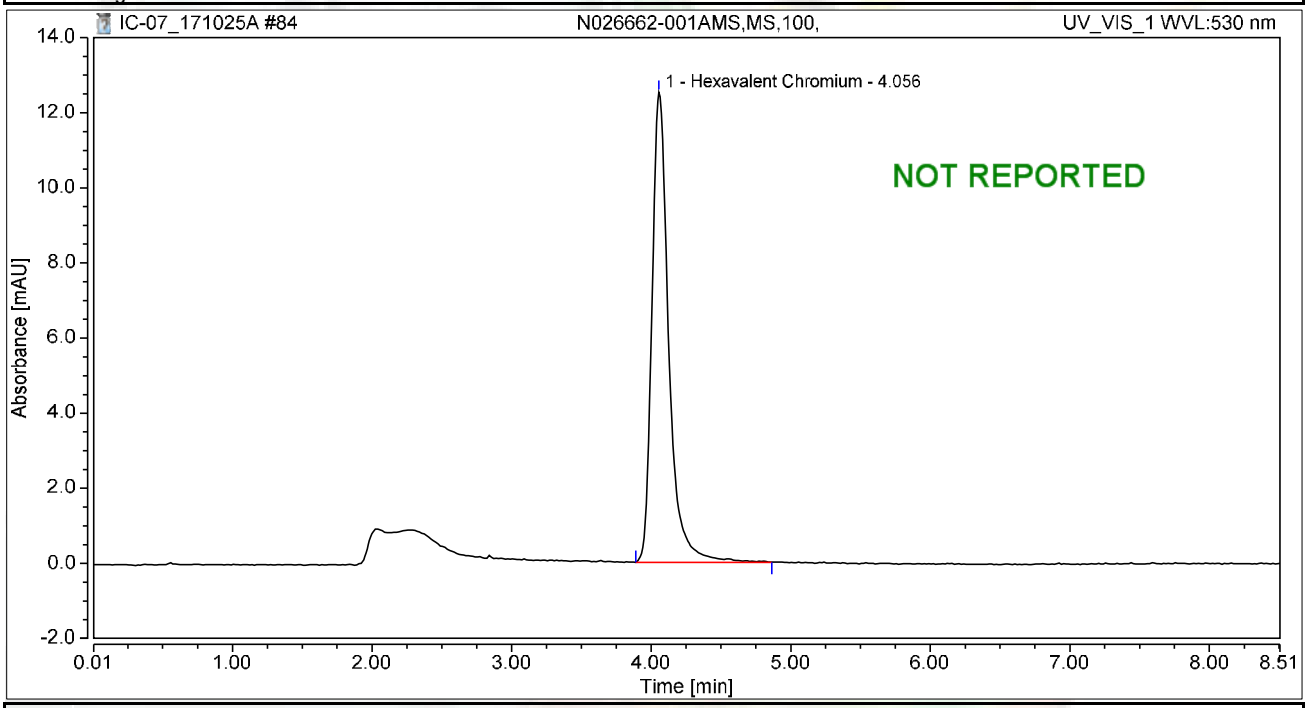
Chromatogram and Results

Injection Details

Injection Name:	**N026662-001AMS,MS,100,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

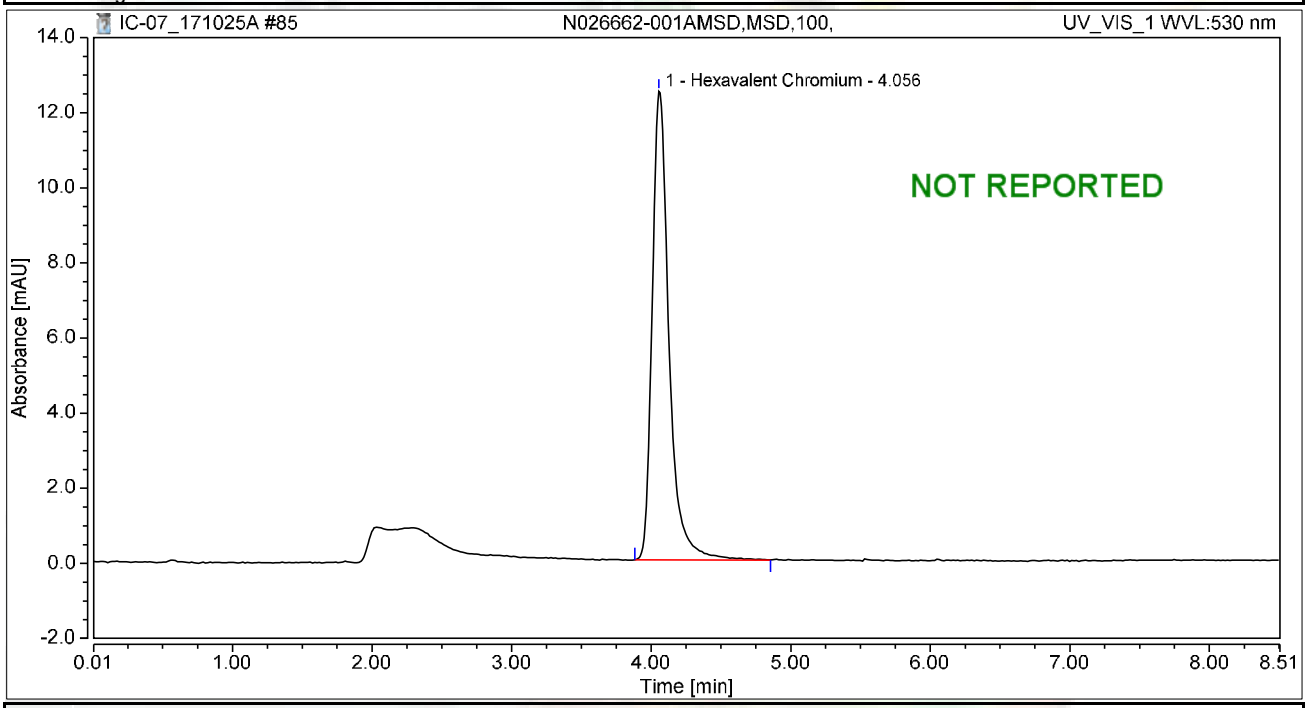
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.749	12.515	100.00	100.00	7.0735
Total:			**1.749**	**12.515**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026662-001AMSD,MSD,100,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

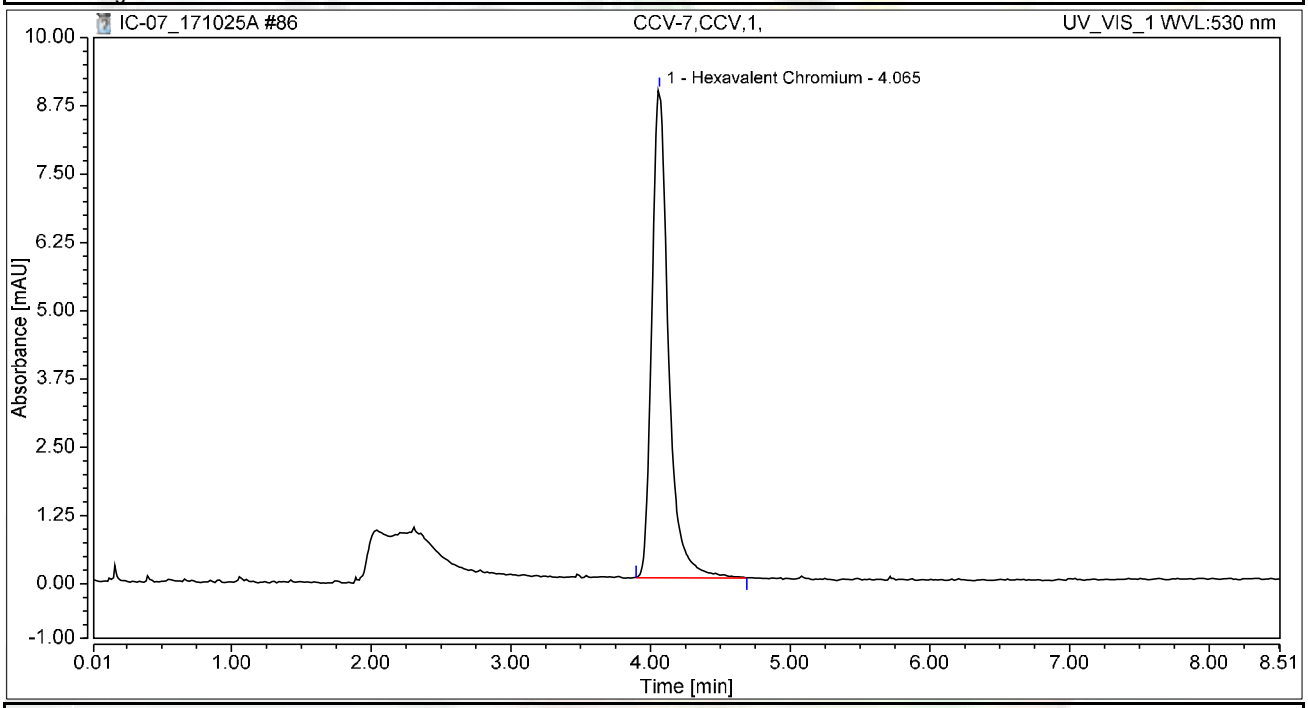
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	1.742	12.472	100.00	100.00	7.0457
Total:			**1.742**	**12.472**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

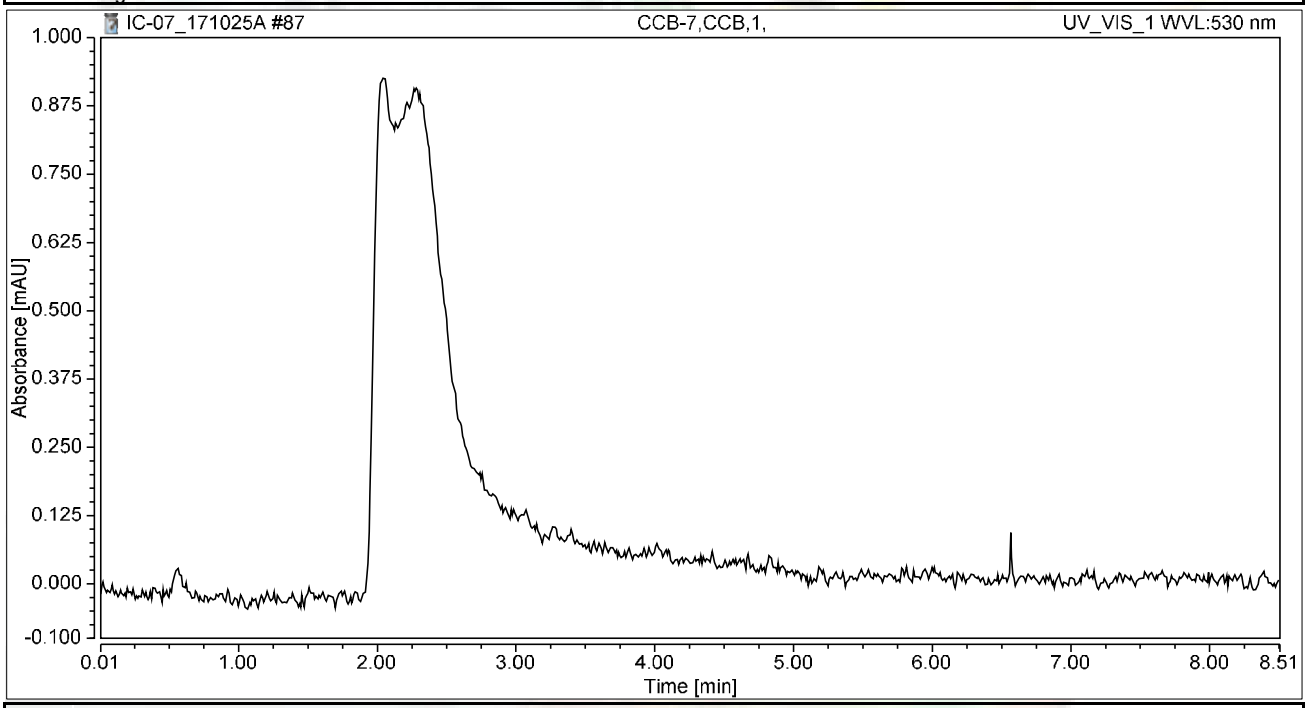
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.232	8.938	100.00	100.00	4.9835
Total:			**1.232**	**8.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

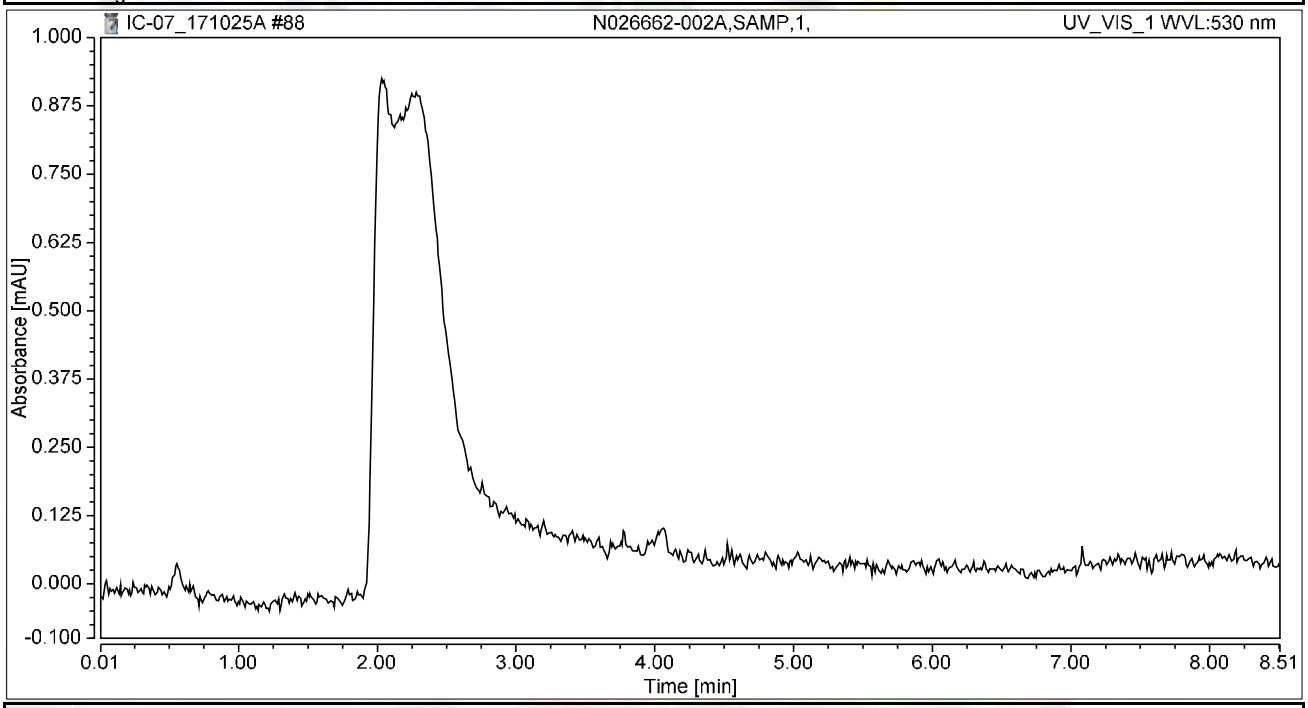
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026662-002A,SAMP,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

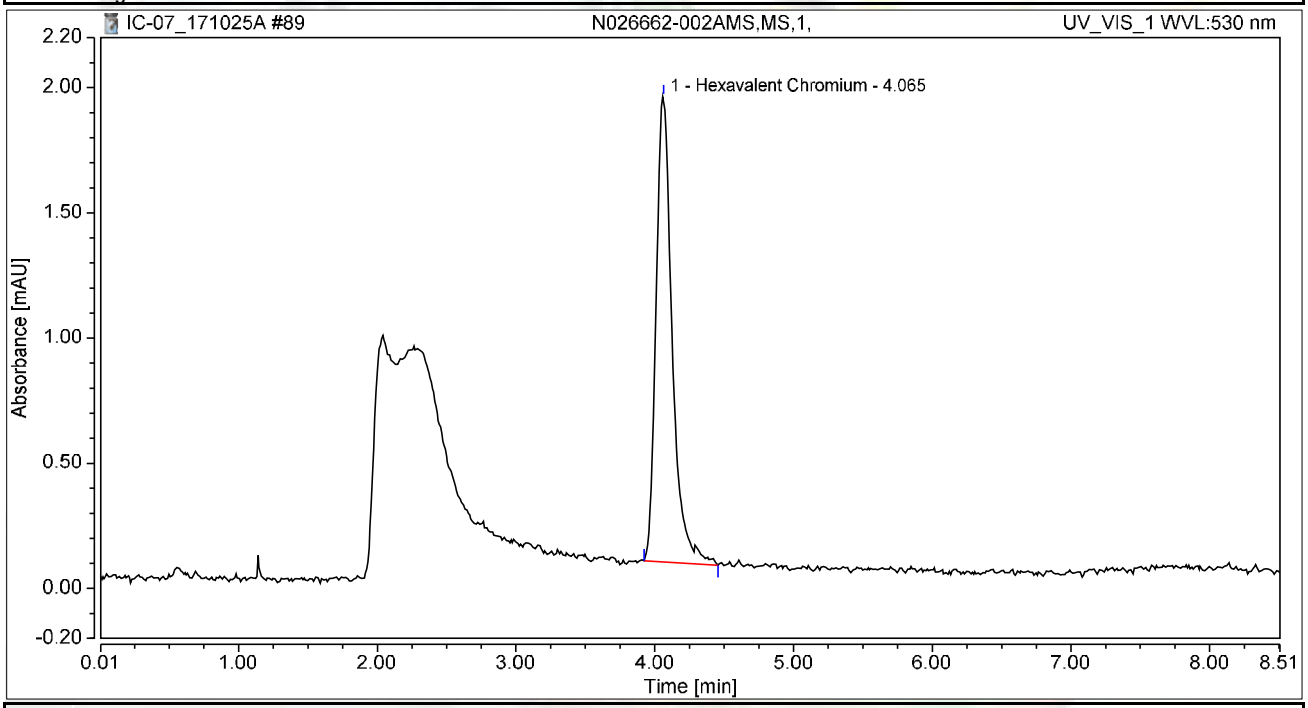
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026662-002AMS,MS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 15:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

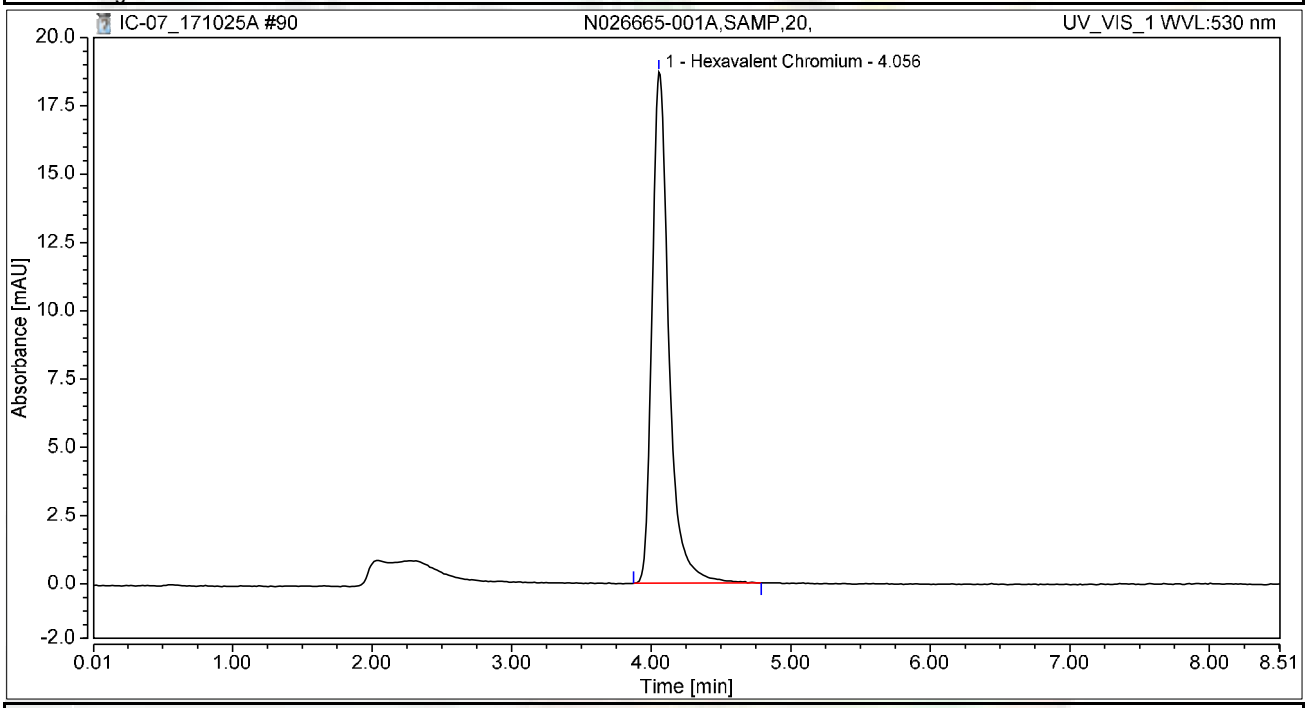
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	0.251	1.858	100.00	100.00	1.0165
Total:			**0.251**	**1.858**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026665-001A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 16:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

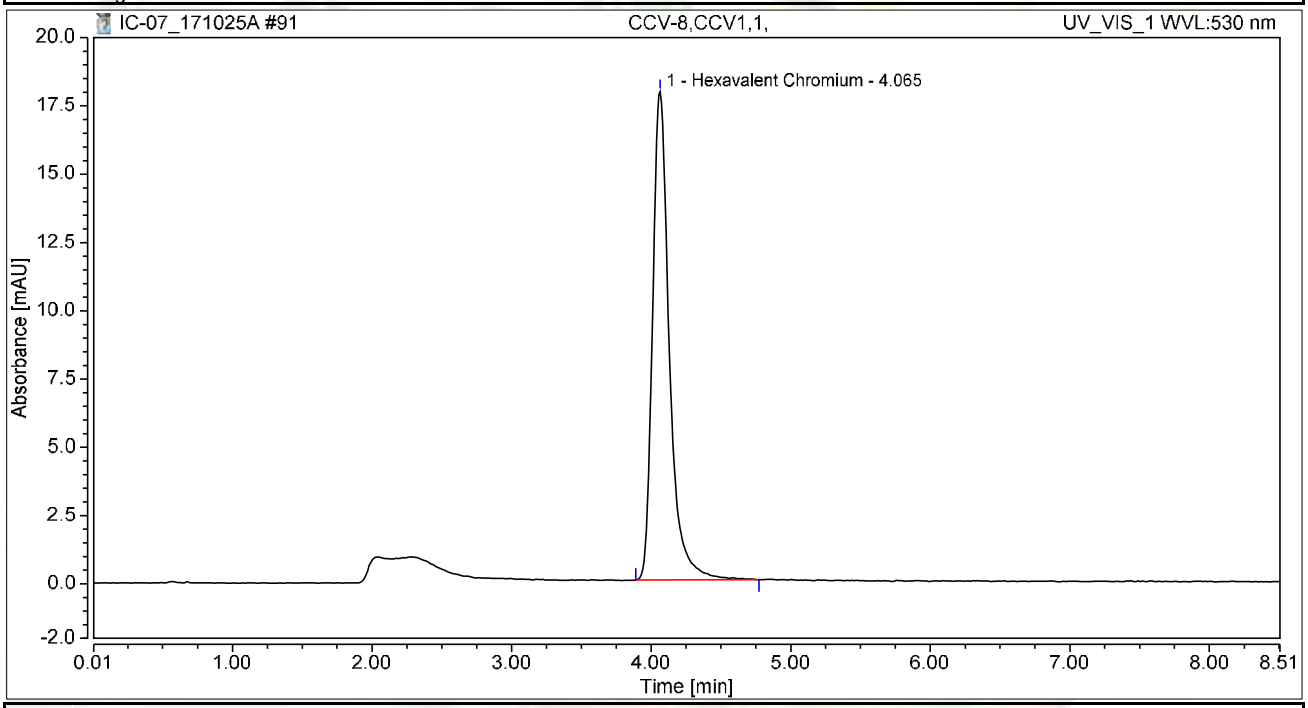
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.621	18.717	100.00	100.00	10.6042
Total:			**2.621**	**18.717**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-8,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 17:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

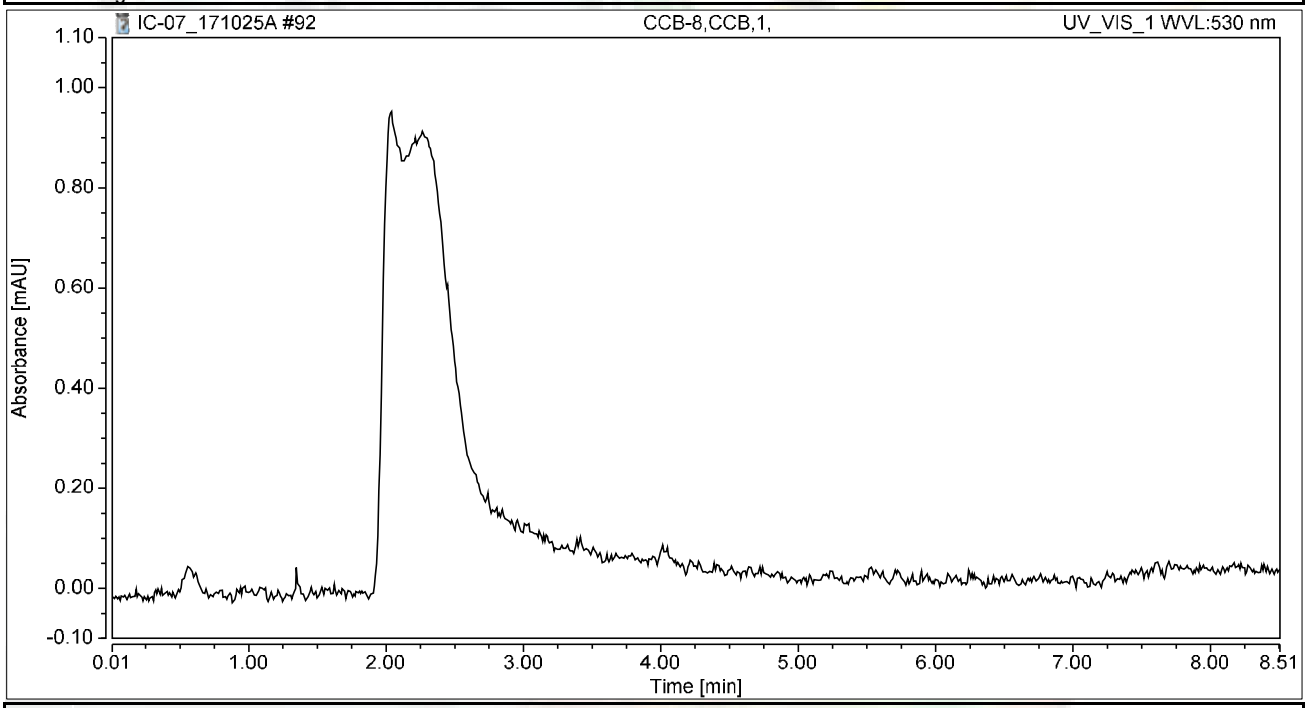
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	2.493	17.882	100.00	100.00	10.0849
Total:			**2.493**	**17.882**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-8,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 17:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

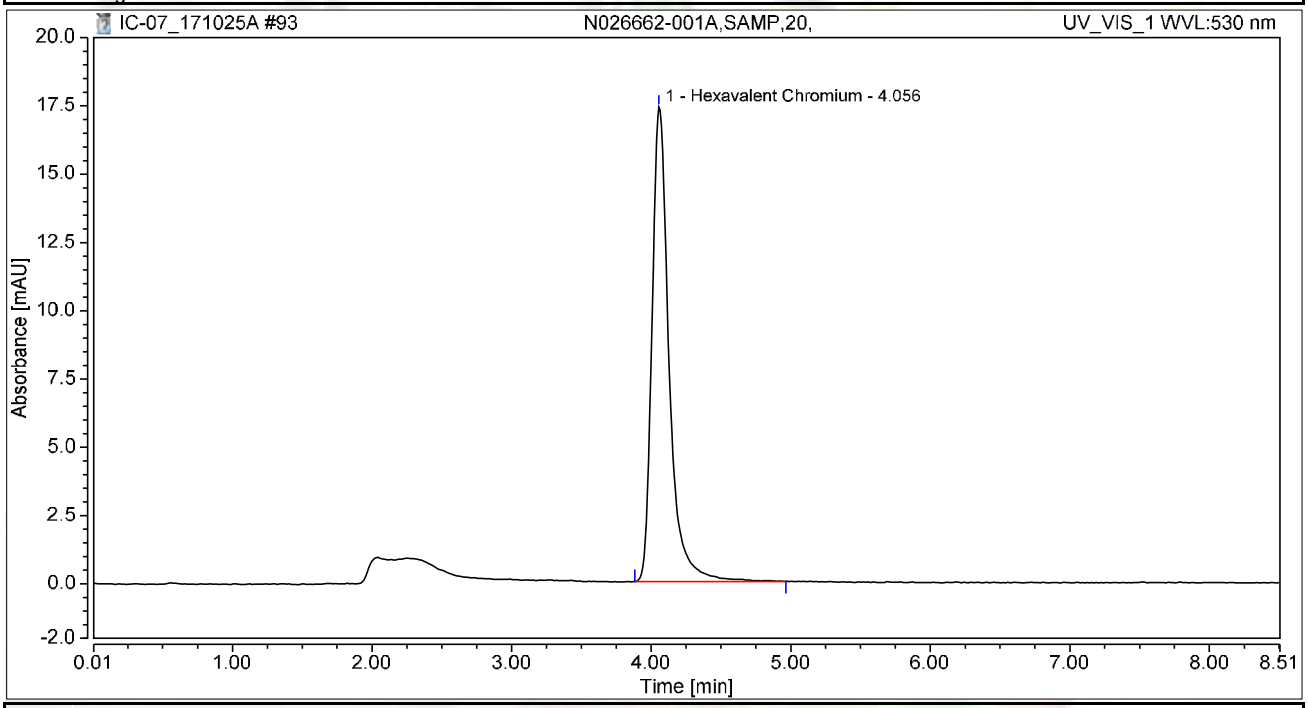
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026662-001A,SAMP,20,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 18:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

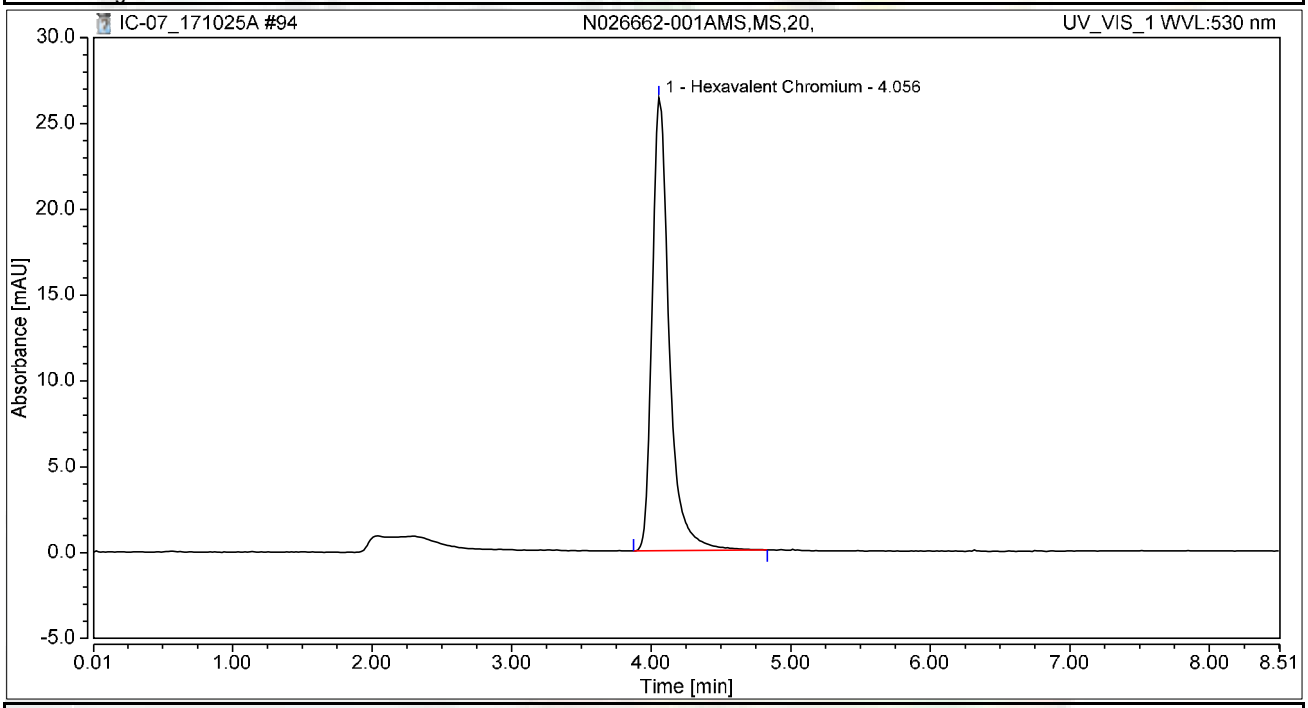
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	2.470	17.370	100.00	100.00	9.9921
Total:			**2.470**	**17.370**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026662-001AMS,MS,20,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 18:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

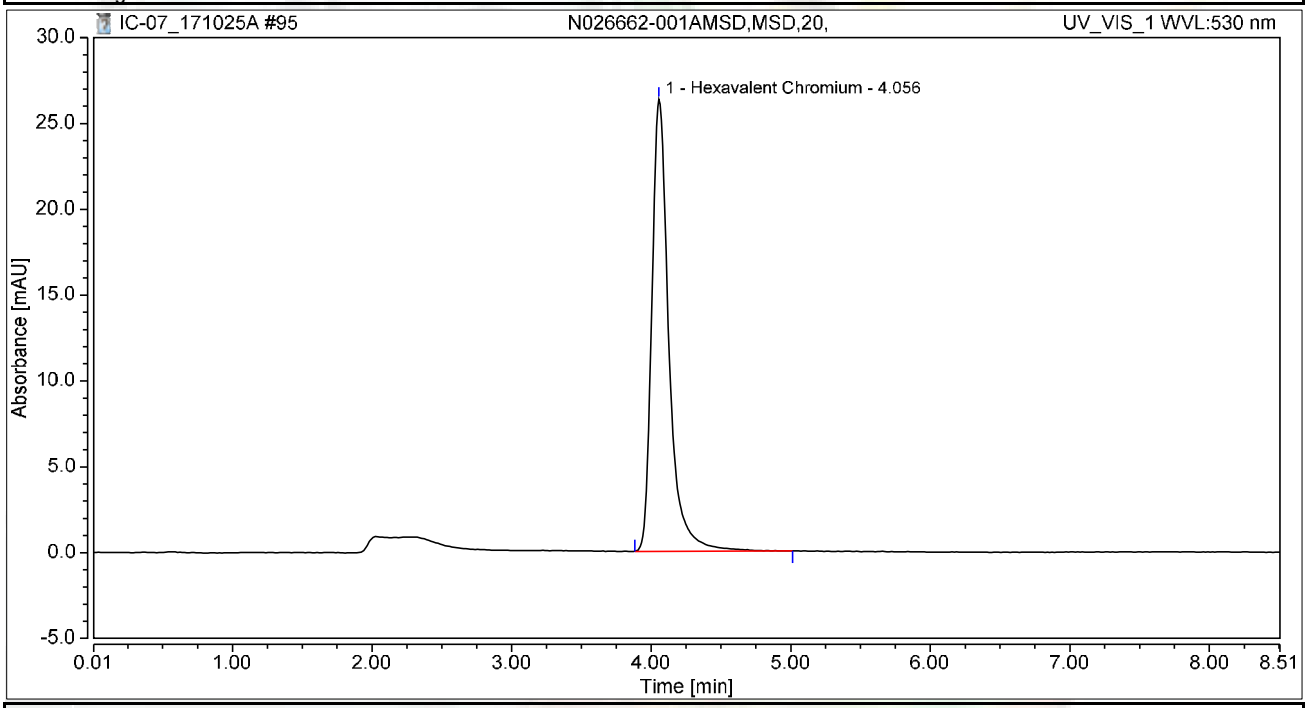
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.751	26.380	100.00	100.00	15.1755
Total:			**3.751**	**26.380**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N026662-001AMSD,MSD,20,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 18:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

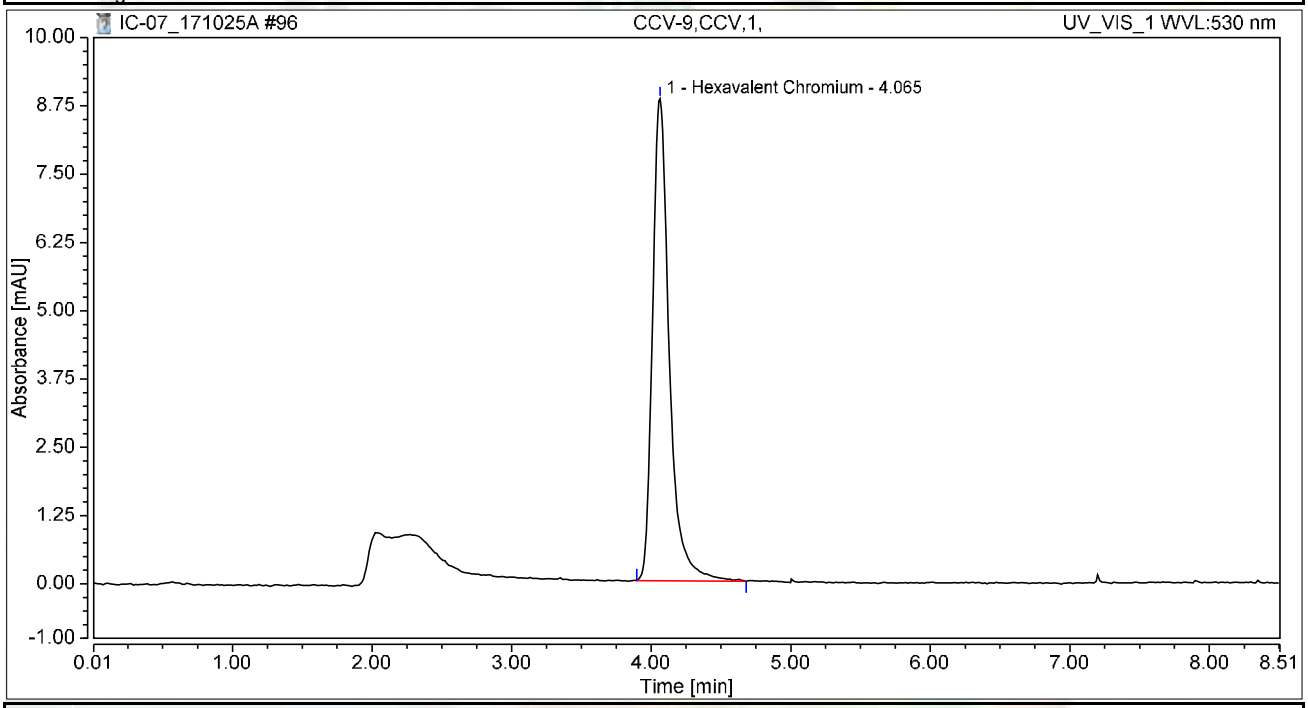
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.056	3.748	26.337	100.00	100.00	15.1620
Total:			**3.748**	**26.337**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-9,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 18:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

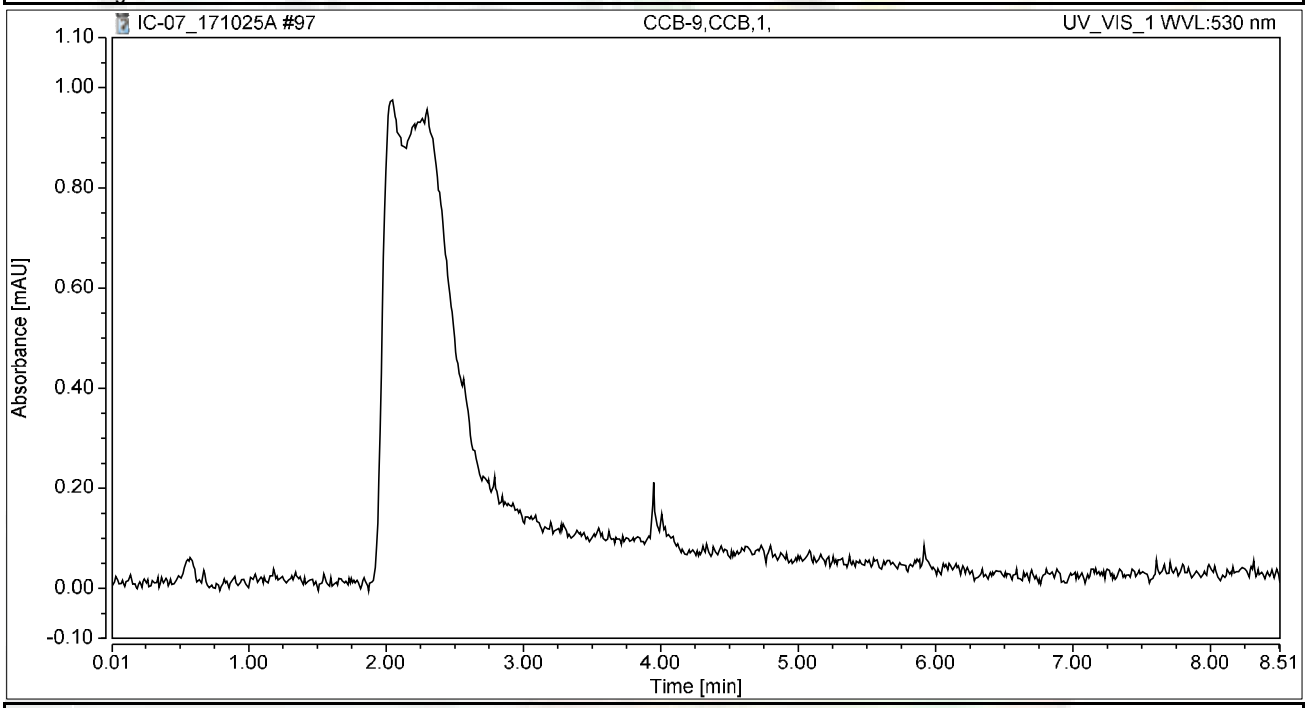
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.065	1.229	8.825	100.00	100.00	4.9710
Total:			**1.229**	**8.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-9,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**171002_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Oct/17 19:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R118856 **Analyst:** LSR

ASSET #: N026662 **Date Analyzed:** 10/27/2017

Method: EPA 2130

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below the PQL .	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Silia Ramit Date: 11/8/2017

2nd Level Reviewer Mary 11/8/2017 Date: —

SAMPLE CALCULATION

Sample ID: **N026662-001C @ pH 7.84**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.15 mL)

= **0.02242 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (3.70) (0.02242 N) (1) * 1000

= 82.9540 mg**/L**

Reporting results in two significant figures,

= **83.0 mg/L** as CaCO3

Julia Ramit 11/8/2017

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02242 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.70 mL) (0.02242) (1) * 1000

= 82.9540 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **82.9540 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **83.0 mg/L**

Julia Ramit 11/8/2017

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

MB-1	5.44	50	0.00	0.050	MBLK			Spike amt:	**5**	ml
LCS-1	8.38	50	0.05	4.35	LCS			Titrant used:	**11.15**	ml
N026645-001C	7.86	50	0.00	15.30	SAMP					
N026645-002C	7.46	50	0.00	33.60	SAMP			N H2SO4	**0.02242**	Normal
N026645-003C	7.62	50	0.00	33.20	SAMP					
N026661-001D	7.93	50	0.00	2.90	SAMP			**Date Analyzed:**	**10/27/17**	
N026661-002D	7.95	50	0.00	2.90	SAMP			**Time:**	**1:30 PM**	
N026661-003D	7.81	50	0.00	2.60	SAMP			**Analyzed By:**	**LSR**	
N026661-004D	8.00	50	0.00	2.80	SAMP					
N026661-005D	7.78	50	0.00	2.30	SAMP					
N026661-006D	7.87	50	0.00	2.70	SAMP			Sodium Carbonate:	**CINV-161205A**	
N026661-007D	7.77	50	0.00	2.50	SAMP			Sodium Bicarbonate:	**CINV-150601A**	
N026662-001C	7.84	50	0.00	3.70	SAMP			Sulfuric Acid:	**R171006B**	
N026679-001C	7.57	50	0.00	27.10	SAMP					
N026679-002C	7.12	50	0.00	18.40	SAMP					
N026679-003C	7.90	50	0.00	14.90	SAMP					
N026661-001DDUP	7.88	50	0.00	2.80	DUP					
N026662-001CMS	8.19	50	0.00	8.00	MS					
N026662-001CMSD	8.20	50	0.00	8.00	MSD					

Julia Ramit 11/8/2017

Date Analyzed:	10/27/17		Reagents:					Standardization:					P = 0
Time Started:	1:30 PM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.15	mL		P = 1/2 T
				Sulfuric Acid:		R171006B							P > 1/2 T
									N H2SO4	0.02242	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.44				0.02242	0.00	0.05	0.05	1	0.00	1.12	
LCS-1	50	8.38				0.02242	0.05	4.30	4.35	1	1.12	97.53	
N026645-001C	50	7.86				0.02242	0.00	15.30	15.30	1	0.00	343.05	
N026645-002C	50	7.46				0.02242	0.00	33.60	33.60	1	0.00	753.36	
N026645-003C	50	7.62				0.02242	0.00	33.20	33.20	1	0.00	744.39	
N026661-001D	50	7.93				0.02242	0.00	2.90	2.90	1	0.00	65.02	
N026661-002D	50	7.95				0.02242	0.00	2.90	2.90	1	0.00	65.02	
N026661-003D	50	7.81				0.02242	0.00	2.60	2.60	1	0.00	58.30	
N026661-004D	50	8				0.02242	0.00	2.80	2.80	1	0.00	62.78	
N026661-005D	50	7.78				0.02242	0.00	2.30	2.30	1	0.00	51.57	
N026661-006D	50	7.87				0.02242	0.00	2.70	2.70	1	0.00	60.54	
N026661-007D	50	7.77				0.02242	0.00	2.50	2.50	1	0.00	56.05	
N026662-001C	50	7.84				0.02242	0.00	3.70	3.70	1	0.00	82.96	
N026679-001C	50	7.57				0.02242	0.00	27.10	27.10	1	0.00	607.62	
N026679-002C	50	7.12				0.02242	0.00	18.40	18.40	1	0.00	412.56	
N026679-003C	50	7.9				0.02242	0.00	14.90	14.90	1	0.00	334.08	
N026661-001DDU	50	7.88				0.02242	0.00	2.80	2.80	1	0.00	62.78	
N026662-001CMS	50	8.19				0.02242	0.00	8.00	8.00	1	0.00	179.37	
N026662-001CMS	50	8.2				0.02242	0.00	8.00	8.00	1	0.00	179.37	

Silvia Ramit 11/8/2017

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	10/27/17
Time:	1:30 PM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.12	1.12	1.12		P = 0
LCS-1	0.00	2.24	95.29	97.53	97.53		P < 1/2 T
N026645-001C	0.00	0.00	343.05	343.05	343.05		P = 0
N026645-002C	0.00	0.00	753.36	753.36	753.36		P = 0
N026645-003C	0.00	0.00	744.39	744.39	744.39		P = 0
N026661-001D	0.00	0.00	65.02	65.02	65.02		P = 0
N026661-002D	0.00	0.00	65.02	65.02	65.02		P = 0
N026661-003D	0.00	0.00	58.30	58.30	58.30		P = 0
N026661-004D	0.00	0.00	62.78	62.78	62.78		P = 0
N026661-005D	0.00	0.00	51.57	51.57	51.57		P = 0
N026661-006D	0.00	0.00	60.54	60.54	60.54		P = 0
N026661-007D	0.00	0.00	56.05	56.05	56.05		P = 0
N026662-001C	0.00	0.00	82.96	82.96	82.96		P = 0
N026679-001C	0.00	0.00	607.62	607.62	607.62		P = 0
N026679-002C	0.00	0.00	412.56	412.56	412.56		P = 0
N026679-003C	0.00	0.00	334.08	334.08	334.08		P = 0
N026661-001DDUP	0.00	0.00	62.78	62.78	62.78		P = 0
N026662-001CMS	0.00	0.00	179.37	179.37	179.37		P = 0
N026662-001CMSD	0.00	0.00	179.37	179.37	179.37		P = 0

Julia Ramit 11/8/2017

Book #6

Matrix: H_2O

Date Extracted: 10/27/17
Time Extracted:
Extracted By: LSR

Date Analyzed: 10/27/17
Time Analyzed: 1330
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV161205A
Hydrochloric Acid: –
Sulfuric Acid: R171006B
Sodium Bicarbonate: CINV150601A

pH meter Calibration
Slope: 99.1%
pH 7 – 7.00 – CINV170615F
4 – 4.01 – 170615E
10 – 10.05 – 170822B

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50 mL	10.67	INST171027A	5 mL	0.05 N	–	–	11.10	50/50	N H_2SO_4 = (2.65 g/L)(5 mL) / (53)(V titrant)	= 0.022522522
	#2	↓	10.67	↓	↓	↓			11.20	↓		= 0.022321428
1)	MBLK	50 mL	5.44	–	–	–	0.02242	0	0.05	50/50		Ave: 0.02242/975
2)	LCS	↓	8.38	INST171027B	1 mL	0.05 N	↓	0.05	4.35	↓		
3)	N026645-001C		7.86	–	–	–		0	15.30			
4)	2C		7.46	–	–	–		0	33.60			
5)	3C		7.62	–	–	–		0	33.20			
6)	N026661-001D		7.93	–	–	–		0	2.90			
7)	2D		7.95	–	–	–		0	2.90			
8)	3D		7.81	–	–	–		0	2.60			
9)	4D		8.00	–	–	–		0	2.80			
10)	5D		7.78	–	–	–		0	2.30			
11)	6D		7.87	–	–	–		0	2.70			
12)	7D		7.77	–	–	–		0	2.50			
13)	N026662-001C		7.84	–	–	–		0	3.70			
14)	N026679-001C		7.57	–	–	–		0	27.10		P = (V pH 8.3)(N H_2SO_4)(50,000) / V_{sx}	
15)	2C		7.12	–	–	–		0	18.40			
16)	3C		7.90	–	–	–		0	14.90			
17)	N026661-1DDUP		7.88	–	–	–		0	2.80			
18)	N026662-1CMS		8.19	INST171027B	1 mL	0.05 N		0	8.00		T = (V pH 4.5)(N H_2SO_4)(50,000) / V_{sx}	
19)	1CMSD	↓	8.20	↓	↓	↓	↓	0	8.00	↓		
20)												
	MS											
	MSD											
	LCS											

Julia Ramit 11/8/2017

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R118813
ASSET #: N026661 / N026662 / N026664

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 10/25/2017

Method:

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			X
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			X
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?			X			X
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

N026662 was diluted due to precipitate formed with eluent.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer: rba Date: 10/29/2017

2nd Level Reviewer: RB 11/08/17 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N026662-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 4.6147 * 50

= 230.735

Reporting result in two significant values,

Sulfate, mg/L = 230

rba 11/3/2017

11/08/17

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2017 Anions
Timebase: IC-08_ANIONS
#Samples: 28
Created: 10/2/2017 8:57:18 AM by IC-05
Last Update: 10/2/2017 4:38:06 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
2	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
3	Std - 0	Standard	1000.0	Anions Default	Anions_171002	Finished
4	Std - 1	Standard	1000.0	Anions Default	Anions_171002	Finished
5	Std - 2	Standard	1000.0	Anions Default	Anions_171002	Finished
6	Std - 3	Standard	1000.0	Anions Default	Anions_171002	Finished
7	Std - 4	Standard	1000.0	Anions Default	Anions_171002	Finished
8	Std - 5	Standard	1000.0	Anions Default	Anions_171002	Finished
9	ICV,ICV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
10	ICB,ICB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
11	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
12	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
13	N026198-001A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
14	N026198-002A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
15	N026198-003A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
16	N026198-001A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
17	N026198-002A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
18	N026198-003A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
19	N026198-004A,SAMP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
20	CCV-1,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
21	CCB-1,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
22	N026198-005A,SAMP,2	Unknown	1000.0	Anions Default	Anions_171002	Finished
23	N026198-006A,SAMP,2	Unknown	1000.0	Anions Default	Anions_171002	Finished
24	N026198-001ADUP,DUP,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
25	N026198-001AMS,MS,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
26	N026198-001AMSD,MSD,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
27	CCV-2,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
28	CCB-2,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished

rba 10/3/2017

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2017 Anions
Timebase: IC-08_ANIONS
#Samples: 28
Created: 10/2/2017 8:57:18 AM by IC-05
Last Update: 10/2/2017 4:38:06 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK,1	10/2/2017 8:57:57 AM	BLANK
2	BLANK,BLANK,1	10/2/2017 9:13:15 AM	BLANK
3	Std - 0	10/2/2017 9:28:33 AM	IBLANK
4	Std - 1	10/2/2017 10:08:24 AM	STD-LOW
5	Std - 2	10/2/2017 10:23:43 AM	STD
6	Std - 3	10/2/2017 10:39:00 AM	STD
7	Std - 4	10/2/2017 10:54:18 AM	STD
8	Std - 5	10/2/2017 11:09:36 AM	STD-HIGH
9	ICV,ICV,1	10/2/2017 11:43:51 AM	ICV
10	ICB,ICB,1	10/2/2017 11:59:09 AM	ICB
11	MB-H2O,MBLK,1	10/2/2017 12:14:27 PM	METHOD BLANK
12	LCS-H2O,LCS,1	10/2/2017 12:29:45 PM	LCS
13	N026198-001A,SAMP,1	10/2/2017 1:04:53 PM	SAMP,10mL
14	N026198-002A,SAMP,1	10/2/2017 1:20:12 PM	SAMP,10mL
15	N026198-003A,SAMP,1	10/2/2017 1:35:30 PM	SAMP,10mL
16	N026198-001A,SAMP,1	10/2/2017 1:50:48 PM	SAMP,10mL
17	N026198-002A,SAMP,1	10/2/2017 2:06:05 PM	SAMP,10mL
18	N026198-003A,SAMP,1	10/2/2017 2:21:23 PM	SAMP,10mL
19	N026198-004A,SAMP,1	10/2/2017 2:46:00 PM	SAMP,10mL
20	CCV-1,CCV,1	10/2/2017 3:01:17 PM	CCV
21	CCB-1,CCB,1	10/2/2017 3:16:35 PM	CCB
22	N026198-005A,SAMP,2	10/2/2017 3:31:53 PM	SAMP,5>10mL
23	N026198-006A,SAMP,2	10/2/2017 3:47:11 PM	SAMP,5>10mL
24	N026198-001ADUP,DUP,1	10/2/2017 4:02:28 PM	DUP,10mL
25	N026198-001AMS,MS,1	10/2/2017 4:17:46 PM	MS,10mL
26	N026198-001AMSD,MSD,1	10/2/2017 4:33:04 PM	MSD,10mL
27	CCV-2,CCV,1	10/2/2017 4:48:23 PM	CCV
28	CCB-2,CCB,1	10/2/2017 5:03:41 PM	CCB

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2017 Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/25/2017 7:36:26 AM by IC-05
Last Update: 10/25/2017 2:39:21 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
2	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
3	Std - 0	Standard	1000.0	Anions Default	Anions_171002	Finished
4	Std - 1	Standard	1000.0	Anions Default	Anions_171002	Finished
5	Std - 2	Standard	1000.0	Anions Default	Anions_171002	Finished
6	Std - 3	Standard	1000.0	Anions Default	Anions_171002	Finished
7	Std - 4	Standard	1000.0	Anions Default	Anions_171002	Finished
8	Std - 5	Standard	1000.0	Anions Default	Anions_171002	Finished
9	BLANK,BLANK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
10	CCV-1,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
11	CCB-1,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
14	N026661-001D,SAMP,2	Unknown	1000.0	Anions Default	Anions_171002	Finished
15	N026661-002D,SAMP,2	Unknown	1000.0	Anions Default	Anions_171002	Finished
16	N026661-003D,SAMP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
17	N026661-004D,SAMP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
18	N026661-005D,SAMP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
19	N026661-006D,SAMP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
20	N026661-007D,SAMP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
21	N026662-001C,SAMP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
22	CCV-2,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
23	CCB-2,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
24	N026661-003DMS,MS,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
25	N026661-003DMSD,MSD,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
26	N026661-004DDUP,DUP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
27	N026661-006DMS,MS,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
28	N026664-009A,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
29	N026664-010A,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
30	N026664-011A,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
31	N026664-012A,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
32	N026664-012A,SAMP,100	Unknown	1000.0	Anions Default	Anions_171002	Finished
33	N026664-012A,SAMP,200	Unknown	1000.0	Anions Default	Anions_171002	Finished
34	CCV-3,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
35	CCB-3,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
36	CCV-3,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
37	CCB-3,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
38	N026661-001D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
39	N026661-001DMS,MS,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
40	N026661-001DMSD,MSD,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
41	N026661-005D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished

rba 10/29/2017

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2017 Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/25/2017 7:36:26 AM by IC-05
Last Update: 10/25/2017 2:39:21 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK,1	10/2/2017 8:57:57 AM	BLANK
2	BLANK,BLANK,1	10/2/2017 9:13:15 AM	BLANK
3	Std - 0	10/2/2017 9:28:33 AM	IBLANK
4	Std - 1	10/2/2017 10:08:24 AM	STD-LOW
5	Std - 2	10/2/2017 10:23:43 AM	STD
6	Std - 3	10/2/2017 10:39:00 AM	STD
7	Std - 4	10/2/2017 10:54:18 AM	STD
8	Std - 5	10/2/2017 11:09:36 AM	STD-HIGH
9	BLANK,BLANK,1	10/25/2017 7:36:47 AM	BLANK
10	CCV-1,CCV,1	10/25/2017 7:52:05 AM	CCV
11	CCB-1,CCB,1	10/25/2017 8:07:23 AM	CCB
12	MB-H2O,MBLK,1	10/25/2017 8:22:41 AM	METHOD BLANK
13	LCS-H2O,LCS,1	10/25/2017 8:37:59 AM	LCS
14	N026661-001D,SAMP,2	10/25/2017 8:58:39 AM	SAMP,5>10mL
15	N026661-002D,SAMP,2	10/25/2017 9:13:57 AM	SAMP,5>10mL
16	N026661-003D,SAMP,5	10/25/2017 9:29:16 AM	SAMP,2>10mL
17	N026661-004D,SAMP,5	10/25/2017 9:44:34 AM	SAMP,2>10mL
18	N026661-005D,SAMP,5	10/25/2017 9:59:51 AM	SAMP,2>10mL
19	N026661-006D,SAMP,5	10/25/2017 10:15:09 AM	SAMP,2>10mL
20	N026661-007D,SAMP,5	10/25/2017 10:30:27 AM	SAMP,2>10mL
21	N026662-001C,SAMP,5	10/25/2017 10:45:45 AM	SAMP,2>10mL
22	CCV-2,CCV,1	10/25/2017 11:01:03 AM	CCV
23	CCB-2,CCB,1	10/25/2017 11:16:21 AM	CCB
24	N026661-003DMS,MS,5	10/25/2017 11:31:38 AM	MS,2>10mL
25	N026661-003DMSD,MSD,5	10/25/2017 11:46:56 AM	MSD,2>10mL
26	N026661-004DDUP,DUP,5	10/25/2017 12:02:14 PM	DUP,2>10mL
27	N026661-006DMS,MS,5	10/25/2017 12:17:32 PM	MS,2>10mL
28	N026664-009A,SAMP,50	10/25/2017 12:32:50 PM	SAMP,0.2>10mL
29	N026664-010A,SAMP,50	10/25/2017 12:48:08 PM	SAMP,0.2>10mL
30	N026664-011A,SAMP,50	10/25/2017 1:03:25 PM	SAMP,0.2>10mL
31	N026664-012A,SAMP,50	10/25/2017 1:18:44 PM	SAMP,0.2>10mL
32	N026664-012A,SAMP,100	10/25/2017 1:34:02 PM	SAMP,0.1>10mL
33	N026664-012A,SAMP,200	10/25/2017 1:50:46 PM	SAMP,0.05>10mL
34	CCV-3,CCV,1	10/25/2017 2:06:04 PM	CCV
35	CCB-3,CCB,1	10/25/2017 2:21:22 PM	CCB
36	CCV-3,CCV,1	10/25/2017 2:39:29 PM	CCV
37	CCB-3,CCB,1	10/25/2017 2:54:47 PM	CCB
38	N026661-001D,SAMP,500	10/25/2017 3:10:04 PM	SAMP,0.02>10mL
39	N026661-001DMS,MS,500	10/25/2017 3:25:22 PM	MS,0.02>10mL
40	N026661-001DMSD,MSD,500	10/25/2017 3:40:40 PM	MSD,0.02>10mL
41	N026661-005D,SAMP,500	10/25/2017 3:55:58 PM	SAMP,0.02>10mL

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2017 Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/25/2017 7:36:26 AM by IC-05
Last Update: 10/25/2017 2:39:21 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N026661-005DDUP,DUP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
43	N026661-002D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
44	N026661-003D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
45	N026661-004D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
46	N026661-006D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
47	N026661-007D,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
48	CCV-4,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
49	CCB-4,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
50	N026662-001C,SAMP,500	Unknown	1000.0	Anions Default	Anions_171002	Finished
51	N026661-001D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
52	N026661-001DMS,MS,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
53	N026661-001DMSD,MSD,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
54	N026661-004D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
55	N026661-004DDUP,DUP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
56	N026661-002D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
57	N026661-003D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
58	N026661-005D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
59	N026661-006D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
60	CCV-5,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
61	CCB-5,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
62	N026661-007D,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
63	N026662-001C,SAMP,50	Unknown	1000.0	Anions Default	Anions_171002	Finished
64	N026662-001CDUP,DUP,5	Unknown	1000.0	Anions Default	Anions_171002	Finished
65	N026662-001CMS,MS,~~50~~ 5	Unknown	1000.0	Anions Default	Anions_171002	Finished
66	N026662-001CMSD,MSD,~~50~~ 5	Unknown	1000.0	Anions Default	Anions_171002	Finished
67	CCV-6,CCV,1	Unknown	1000.0	Anions Default	Anions_171002	Finished
68	CCB-6,CCB,1	Unknown	1000.0	Anions Default	Anions_171002	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2017 Anions
Timebase: IC-08_ANIONS
#Samples: 68
Created: 10/25/2017 7:36:26 AM by IC-05
Last Update: 10/25/2017 2:39:21 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N026661-005DDUP,DUP,500	10/25/2017 4:11:16 PM	DUP,0.02>10mL
43	N026661-002D,SAMP,500	10/25/2017 4:26:34 PM	SAMP,0.02>10mL
44	N026661-003D,SAMP,500	10/25/2017 4:41:52 PM	SAMP,0.02>10mL
45	N026661-004D,SAMP,500	10/25/2017 4:57:10 PM	SAMP,0.02>10mL
46	N026661-006D,SAMP,500	10/25/2017 5:12:28 PM	SAMP,0.02>10mL
47	N026661-007D,SAMP,500	10/25/2017 5:27:46 PM	SAMP,0.02>10mL
48	CCV-4,CCV,1	10/25/2017 5:43:04 PM	CCV
49	CCB-4,CCB,1	10/25/2017 5:58:22 PM	CCB
50	N026662-001C,SAMP,500	10/25/2017 6:13:39 PM	SAMP,0.02>10mL
51	N026661-001D,SAMP,50	10/25/2017 6:28:58 PM	SAMP,0.2>10mL
52	N026661-001DMS,MS,50	10/25/2017 6:44:16 PM	MS,0.2>10mL
53	N026661-001DMSD,MSD,50	10/25/2017 6:59:34 PM	MSD,0.2>10mL
54	N026661-004D,SAMP,50	10/25/2017 7:14:52 PM	SAMP,0.2>10mL
55	N026661-004DDUP,DUP,50	10/25/2017 7:30:11 PM	DUP,0.2>10mL
56	N026661-002D,SAMP,50	10/25/2017 7:45:29 PM	SAMP,0.2>10mL
57	N026661-003D,SAMP,50	10/25/2017 8:00:47 PM	SAMP,0.2>10mL
58	N026661-005D,SAMP,50	10/25/2017 8:16:05 PM	SAMP,0.2>10mL
59	N026661-006D,SAMP,50	10/25/2017 8:31:23 PM	SAMP,0.2>10mL
60	CCV-5,CCV,1	10/25/2017 8:46:41 PM	CCV
61	CCB-5,CCB,1	10/25/2017 9:02:00 PM	CCB
62	N026661-007D,SAMP,50	10/25/2017 9:17:17 PM	SAMP,0.2>10mL
63	N026662-001C,SAMP,50	10/25/2017 9:32:35 PM	SAMP,0.2>10mL
64	N026662-001CDUP,DUP,5	10/25/2017 9:47:53 PM	DUP,2>10mL
65	N026662-001CMS,MS,50	10/25/2017 10:03:11 PM	MS,2>10mL
66	N026662-001CMSD,MSD,50	10/25/2017 10:18:29 PM	MSD,2>10mL
67	CCV-6,CCV,1	10/25/2017 10:33:46 PM	CCV
68	CCB-6,CCB,1	10/25/2017 10:49:04 PM	CCB

INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/2/2017

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0728	0.1446	0.2907	0.7476	1.5721	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-170814B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

11/08/17

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/2/2017

Initial Calibration:

Bromide	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.05	0.25	0.5	1.25	2.5	R^2
Area,mAU*min	0.0000	0.0029	0.0153	0.0294	0.0748	0.1515	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-170814D

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

11/08/17

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 10/2/2017

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0519	0.2333	0.4491	1.1603	2.4239	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-170814G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

11/08/17

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **ICV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/2/2017**	SeqNo: **2808774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.256	0.10	1.250	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.227	0.10	1.250	0	98.2	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.239	0.10	1.250	0	99.1	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.229	0.10	1.250	0	98.3	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.209	0.10	1.250	0	96.7	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.226	0.10	1.250	0	98.1	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.228	0.10	1.250	0	98.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **ICV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/2/2017**	SeqNo: **2809886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.198	0.50	2.000	0	110	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.937	0.50	2.000	0	96.9	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.068	0.50	2.000	0	103	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.025	0.50	2.000	0	101	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.938	0.50	2.000	0	96.9	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.952	0.50	2.000	0	97.6	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.969	0.50	2.000	0	98.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **ICV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/2/2017**	SeqNo: **2808794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.004	0.50	4.000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.869	0.50	4.000	0	96.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.863	0.50	4.000	0	96.6	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.903	0.50	4.000	0	97.6	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.860	0.50	4.000	0	96.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.879	0.50	4.000	0	97.0	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCV**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.831	0.50	4.000	0	95.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	**ICB**	SampType:	**ICB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**118813**
Client ID:	**ICB**	Batch ID:	**R118813**	TestNo:	**EPA 300.0**			Analysis Date:	**10/2/2017**	SeqNo:	**2808775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID	**CCB-1**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**118813**
Client ID:	**CCB**	Batch ID:	**R118813**	TestNo:	**EPA 300.0**			Analysis Date:	**10/25/2017**	SeqNo:	**2808777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID	**CCB-2**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**118813**
Client ID:	**CCB**	Batch ID:	**R118813**	TestNo:	**EPA 300.0**			Analysis Date:	**10/25/2017**	SeqNo:	**2808782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID	**CCB-3**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**118813**
Client ID:	**CCB**	Batch ID:	**R118813**	TestNo:	**EPA 300.0**			Analysis Date:	**10/25/2017**	SeqNo:	**2808784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID	**CCB-4**	SampType:	**CCB**	TestCode:	**300_W_BRP**	Units:	**mg/L**	Prep Date:		RunNo:	**118813**
Client ID:	**CCB**	Batch ID:	**R118813**	TestNo:	**EPA 300.0**			Analysis Date:	**10/25/2017**	SeqNo:	**2808786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **ICB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/2/2017**	SeqNo: **2809887**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.168	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.194	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.136	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.149	0.50									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2809912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.144	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **ICB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/2/2017**	SeqNo: **2808795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.242	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.225	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.225	0.50									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **118813**
Client ID: **CCB**	Batch ID: **R118813**	TestNo: **EPA 300.0**		Analysis Date: **10/25/2017**	SeqNo: **2808822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name		Retention Time	Evaluation
CCV-1	Sulfate	7.914	
CCV-2	Sulfate	7.880	
CCV-3	Sulfate	7.880	
CCV-3	Sulfate	7.880	
CCV-4	Sulfate	7.877	
CCV-5	Sulfate	7.870	
CCV-6	Sulfate	7.874	

Average 7.882

Applied RT Window 7.682 - 8.082

MB-R118813_SO4	Sulfate	N.A.	N.A.
LCS-R118813_SO4	Sulfate	7.887	PASS
N026661-001DMS	Sulfate	7.880	PASS
N026661-001DMSD	Sulfate	7.884	PASS
N026661-004DDUP	Sulfate	7.877	PASS
N026662-001C	Sulfate	7.874	PASS

rba 11/3/2017

11/08/17

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name		Retention Time	Evaluation
CCV-1	Bromide	5.004	
CCV-2	Bromide	4.987	
CCV-3	Bromide	4.987	
CCV-4	Bromide	4.984	
CCV-5	Bromide	4.983	
CCV-6	Bromide	4.984	
	Average	4.988	
	Applied RT Window	4.788 - 5.188	
MB-R118813_BR	Bromide	N.A.	N.A.
LCS-R118813_BR	Bromide	4.987	PASS
N026662-001C	Bromide	N.A.	N.A.
N026662-001CDUP	Bromide	N.A.	N.A.
N026662-001CMS	Bromide	4.984	PASS
N026662-001CMSD	Bromide	4.983	PASS

rba 11/3/2017

11/08/17

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 10/25/2017

Sample Name		Retention Time	Evaluation
CCV-1	Chloride	3.850	
CCV-2	Chloride	3.833	
CCV-3	Chloride	3.837	
CCV-4	Chloride	3.834	
CCV-5	Chloride	3.833	
CCV-6	Chloride	3.834	

Average 3.837

Applied RT Window 3.637 - 4.037

MB-R118813_CL	Chloride	N.A.	N.A.
LCS-R118813_CL	Chloride	3.837	PASS
N026661-001DMS	Chloride	3.837	PASS
N026661-001DMSD	Chloride	3.837	PASS
N026661-005DDUP	Chloride	3.837	PASS
N026662-001C	Chloride	3.834	PASS

rba 11/3/2017

RB 11/08/17

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2017

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)** Matrix: **WATER**
Method Number: EPA Method 300.0 Unit: mg/L
Analysis Date(s): 5/26/2017
Analyst: Ria Abes

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.024	0.10	0.0906	**91**
Chloride	**0.0091**	0.020	0.130	0.50	0.5635	**113**
Nitrite	**0.0030**	0.010	0.023	0.05	0.0581	**116**
Bromide	**0.0196**	0.040	0.048	0.20	0.194	**97**
Nitrate	**0.0050**	0.010	0.023	0.05	0.0599	**120**
Phosphate	**0.0135**	0.030	0.043	0.10	0.1111	**111**
Sulfate	**0.0229**	0.050	0.195	0.50	0.6178	**124**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 64448
ASSET #: N026626

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 11/7/2017

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.		X			X	
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X		X	X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below the PQL .	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented		X				X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

%Rec of Cr in N026662-001B PS/MSD failed. However LCS & DT passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer CEI Date: 11/8/17

2nd Level Reviewer 11/8/2017 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N026662-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 37.7197 * 5 * (25/25)

Chromium , ug/L = 188.5985

Reporting results in two significant figures,

Chromium , ug/L = 190

% RSD SUMMARY

PERCENT RSD SUMMARY: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	8.9	15	PASS	0.14	0.58	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.53	3.77	15	PASS	0.59	2.21	15	PASS
Std3-5/50 ppb	ICAL	1	5.44	5.38	15	PASS	5.33	3.5	15	PASS
Std4-10/100 ppb	ICAL	1	10.24	0.49	15	PASS	10.59	0.4	15	PASS
Std5-20/200 ppb	ICAL	1	20.53	1.57	15	PASS	20.75	0.78	15	PASS
Std6-40/400 ppb	ICAL	1	40.33	0.39	15	PASS	41.05	0.97	15	PASS
Std7-100/1000 ppb	ICAL	1	99.82	1.19	15	PASS	101.00057	0.77	15	PASS
Std8-200/2000 ppb	ICAL	1	199.95	1.27	15	PASS	199.18	1.46	15	PASS
ICV	ICV	1	10.097	3.27	15	PASS	101.57	1.54	15	PASS
ICB	ICB	1	0.00097	296.83	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.99	5.31	20	PASS	0.52	1.73	20	PASS
ICSA1	ICSA	1	0.07	28.85	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.77	1.49	15	PASS	18.52	0.77	15	PASS
LLICV	CCV1	1	1.0018	0.59	20	PASS	0.5	6.91	20	PASS
MB-64448	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-64448	LCS	1	9.91	1.027	15	PASS	99.45	2.17	15	PASS
N026662-001B	SAMP	1	181.91	0.89	15	PASS	2.43	3.35	15	PASS
N026662-001B	SAMP	5	37.72	1.33	15	PASS	0.51	5.59	15	PASS
N026662-001B	SAMP	25	7.76	0.17	15	PASS	0.12	11.53	15	PASS
N026662-001B-PS	PS	1	184.73	0.75	15	PASS	91.85	0.28	15	PASS
N026662-001B-PS	PS	5	40.22	0.85	15	PASS	20.18	2.055	15	PASS
N026662-001B-MS	MS	1	183.92	0.34	15	PASS	92.21	0.025	15	PASS
N026662-001B-MS	MS	5	39.39	1.11	15	PASS	20.15	2.56	15	PASS
N026662-001B-MSD	MSD	1	179.4	2.28	15	PASS	91.24	2.36	15	PASS
CCV1	CCV	1	20.58	0.77	15	PASS	20.6	0.9	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N026662-001B-MSD	MSD	5	39.096	0.83	15	PASS	20.0045	1.64	15	PASS
N026690-001B	SAMP	1	79.75	1.069	15	PASS	0.69	15.54	15	NR!
N026690-001B	SAMP	5	16.47	0.54	15	PASS	<0.000	N/A	15	<PQL
N026690-002B	SAMP	1	78.64	1.9	15	PASS	<0.000	N/A	15	<PQL
N026690-002B	SAMP	5	16.58	0.81	15	PASS	<0.000	N/A	15	<PQL
N026707-001B	SAMP	1	1.49	2.18	15	PASS	1760.36	1.75	15	PASS
N026707-001B	SAMP	5	0.31	7.0091	15	PASS	376.95	1.35	15	PASS
N026707-002B	SAMP	1	633.5	1.47	15	PASS	<0.000	N/A	15	<PQL
N026707-002B	SAMP	5	135.3	0.81	15	PASS	<0.000	N/A	15	<PQL
N026707-003B	SAMP	1	603.61	1.75	15	PASS	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.16	2.019	15	PASS	20.85	1.073	15	PASS
CCB2	CCB	1	0.0094	10.95	15	PASS	<0.000	N/A	15	<PQL
N026707-003B	SAMP	5	127.91	0.99	15	PASS	<0.000	N/A	15	<PQL
N026707-007B	SAMP	1	0.34	6	15	PASS	2050.43	0.92	15	PASS

PERCENT RSD SUMMARY: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026707-007B	SAMP	5	0.079	4.91	15	PASS	444.46	0.79	15	PASS
N026707-008B	SAMP	1	1.55	2.18	15	PASS	1790.1	1.84	15	PASS
N026707-008B	SAMP	5	0.34	0.2	15	PASS	380.11	0.75	15	PASS
N026738-001B	SAMP	1	0.24	6.7	15	PASS	4252.29	0.4	15	PASS
N026738-001B	SAMP	5	0.042	4.53	15	PASS	906.9	0.95	15	PASS
N026738-002B	SAMP	1	411.56	1.23	15	PASS	296.59	0.11	15	PASS
N026738-002B	SAMP	5	86.84	1.89	15	PASS	62.29	1.23	15	PASS
N026738-003B	SAMP	1	414.33	1.17	15	PASS	299.12	1.4	15	PASS
CCV3	CCV	1	20.11	1.29	15	PASS	21.15	1.17	15	PASS
CCB3	CCB	1	0.0079	90.18	15	<PQL	0.0082	54.24	15	<PQL
N026738-003B	SAMP	5	86.56	0.55	15	PASS	63.21	0.22	15	PASS
N026738-005B	SAMP	1	0.18	8.32	15	PASS	4339.9	1.63	15	PASS
N026738-005B	SAMP	5	0.043	7.31	15	PASS	912.74	1.11	15	PASS
N026738-005B	SAMP	25	0.0063	44.91	15	<PQL	188.49	0.62	15	PASS
N026738-001B	SAMP	25	0.003	43.9	15	<PQL	187.73	0.99	15	PASS
N026707-001B	SAMP	25	0.065	3.24	15	PASS	78.33	1.71	15	PASS
N026707-007B	SAMP	25	0.016	23.37	15	<PQL	90.37	1.97	15	PASS
N026707-008B	SAMP	25	0.065	4.058	15	PASS	78.43	0.22	15	PASS
N026738-005B	SAMP	50	0.0068	145.14	15	<PQL	93.23	1.28	15	PASS
N026738-001B	SAMP	50	0.01	41.076	15	<PQL	93.12	1.87	15	PASS
CCV4	CCV	1	19.87	1.58	15	PASS	20.89	2.32	15	PASS
CCB4	CCB	1	0.0019	199.17	15	<PQL	0.0046	212.86	15	<PQL
LLCCV1	CCV2	1	0.99	2.35	20	PASS	0.54	5.81	20	PASS
ICSA2	ICSA	1	0.078	6.2	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.61	1.1	15	PASS	19.14	1.0089	15	PASS

PERCENT RSD SUMMARY: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	23.48	15	<PQL	0.09	4.089	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.53	14.78	15	PASS	0.5	4.24	15	PASS
Std3-5/50 ppb	ICAL	1	5.054	6.1	15	PASS	5.027	1.42	15	PASS
Std4-10/100 ppb	ICAL	1	9.98	4.81	15	PASS	10.1	2.57	15	PASS
Std5-20/200 ppb	ICAL	1	20.065	3.035	15	PASS	19.74	1.11	15	PASS
Std6-40/400 ppb	ICAL	1	40.27	1.43	15	PASS	40.088	1.24	15	PASS
Std7-100/1000 ppb	ICAL	1	100.27	0.38	15	PASS	100.047	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	199.8	1.026	15	PASS	199.98	0.55	15	PASS
ICV	ICV	1	9.66	3.29	15	PASS	10.48	2.91	15	PASS
ICB	ICB	1	0.026	56.98	15	<PQL	0.17	1.69	15	PASS
LLICV	CCV1	1	0.47	22.69	20	<PQL	0.55	3.11	20	PASS
ICSA1	ICSA	1	0.022	89.072	15	<PQL	0.067	5.42	15	PASS
ICSAB1	ICSAB	1	18.086	2.79	15	PASS	22.066	1.5	15	PASS
LLICV	CCV1	1	0.53	27.52	20	NR!	0.55	6.86	20	PASS
MB-64448	MBLK	1	0.029	91.97	15	<PQL	0.026	14.26	15	PASS
LCS-64448	LCS	1	9.5	1.074	15	PASS	10.0026	0.83	15	PASS
N026662-001B	SAMP	1	2.19	2.64	15	PASS	10.5	2.49	15	PASS
N026662-001B	SAMP	5	0.48	35.03	15	<PQL	2.14	0.88	15	PASS
N026662-001B	SAMP	25	0.086	39.088	15	<PQL	0.44	2.84	15	PASS
N026662-001B-PS	PS	1	10.76	3.71	15	PASS	21.62	0.69	15	PASS
N026662-001B-PS	PS	5	2.39	2.83	15	PASS	4.45	1.35	15	PASS
N026662-001B-MS	MS	1	10.85	5.46	15	PASS	21.17	1.19	15	PASS
N026662-001B-MS	MS	5	2.41	11.46	15	PASS	4.35	1.5	15	PASS
N026662-001B-MSD	MSD	1	11.53	7.77	15	PASS	21.42	1.57	15	PASS
CCV1	CCV	1	19.42	4.79	15	PASS	19.81	2.76	15	PASS
CCB1	CCB	1	0.014	91.14	15	<PQL	0.073	17.24	15	<PQL
N026662-001B-MSD	MSD	5	2.36	7.17	15	PASS	4.33	1.59	15	PASS
N026690-001B	SAMP	1	0.14	24.42	15	<PQL	3.062	0.78	15	PASS
N026690-001B	SAMP	5	0.015	69.0077	15	<PQL	0.6	1.19	15	PASS
N026690-002B	SAMP	1	0.12	7.15	15	PASS	2.99	1.52	15	PASS
N026690-002B	SAMP	5	0.023	173.21	15	<PQL	0.59	4.82	15	PASS
N026707-001B	SAMP	1	0.016	91.78	15	<PQL	15.21	1.64	15	PASS
N026707-001B	SAMP	5	0.0066	86.65	15	<PQL	3.031	1.37	15	PASS
N026707-002B	SAMP	1	0.87	0.32	15	PASS	3.18	3.45	15	PASS
N026707-002B	SAMP	5	0.27	32.38	15	<PQL	0.63	0.72	15	PASS
N026707-003B	SAMP	1	1.018	9.42	15	PASS	3.11	2.21	15	PASS
CCV2	CCV	1	20.078	2.83	15	PASS	19.6	1.48	15	PASS
CCB2	CCB	1	0.02	132.66	15	<PQL	0.058	10.61	15	PASS
N026707-003B	SAMP	5	0.23	27.6	15	<PQL	0.66	4.18	15	PASS
N026707-007B	SAMP	1	0.014	114.78	15	<PQL	7.75	2.13	15	PASS

PERCENT RSD SUMMARY: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N026707-007B	SAMP	5	0	N/A	15	<PQL	1.56	0.64	15	PASS
N026707-008B	SAMP	1	0.01	100.05	15	<PQL	15.3	0.36	15	PASS
N026707-008B	SAMP	5	0.0067	173.21	15	<PQL	3.048	1.49	15	PASS
N026738-001B	SAMP	1	0.0063	173.21	15	<PQL	27.86	1.93	15	PASS
N026738-001B	SAMP	5	0.0067	86.61	15	<PQL	5.48	1.92	15	PASS
N026738-002B	SAMP	1	0.081	26.17	15	<PQL	4.5	2.47	15	PASS
N026738-002B	SAMP	5	0.02	86.76	15	<PQL	0.91	4.72	15	PASS
N026738-003B	SAMP	1	0.14	40.14	15	<PQL	4.43	3.64	15	PASS
CCV3	CCV	1	19.7	1.56	15	PASS	19.83	0.77	15	PASS
CCB3	CCB	1	0.011	100.53	15	<PQL	0.045	15.38	15	<PQL
N026738-003B	SAMP	5	0.05	68.89	15	<PQL	0.92	5.13	15	PASS
N026738-005B	SAMP	1	0.0068	86.6	15	<PQL	28.11	1.33	15	PASS
N026738-005B	SAMP	5	0.01	173.21	15	<PQL	5.55	0.8	15	PASS
N026738-005B	SAMP	25	0.0071	173.21	15	<PQL	1.085	2.9	15	PASS
N026738-001B	SAMP	25	0	N/A	15	<PQL	1.061	1.95	15	PASS
N026707-001B	SAMP	25	0	N/A	15	<PQL	0.57	10.45	15	PASS
N026707-007B	SAMP	25	0	N/A	15	<PQL	0.29	2.19	15	PASS
N026707-008B	SAMP	25	0.014	114.32	15	<PQL	0.61	4.061	15	PASS
N026738-005B	SAMP	50	0.0035	173.21	15	<PQL	0.54	4.71	15	PASS
N026738-001B	SAMP	50	0.0035	173.21	15	<PQL	0.55	2.42	15	PASS
CCV4	CCV	1	19.6	1.16	15	PASS	19.57	1.31	15	PASS
CCB4	CCB	1	0.029	114.76	15	<PQL	0.04	9.85	15	PASS
LLCCV1	CCV2	1	0.51	28.27	20	NR!	0.5	5.28	20	PASS
ICSA2	ICSA	1	0.0035	173.21	15	<PQL	0.035	17.61	15	<PQL
ICSAB2	ICSAB	1	17.57	1.73	15	PASS	22.14	1.19	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 171107C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C1107001.D	RINSE	RINSE	1	11/07/17 11:49 PM
C1107002.D	Cal Blank	IBLK	1	11/07/17 11:54 PM
C1107003.D	Std1-0.1/1 ppb	ICAL	1	11/08/17 12:00 AM
C1107004.D	Std2-0.5/5 ppb	ICAL	1	11/08/17 12:06 AM
C1107005.D	Std3-5/50 ppb	ICAL	1	11/08/17 12:11 AM
C1107006.D	Std4-10/100 ppb	ICAL	1	11/08/17 12:17 AM
C1107007.D	Std5-20/200 ppb	ICAL	1	11/08/17 12:23 AM
C1107008.D	Std6-40/400 ppb	ICAL	1	11/08/17 12:28 AM
C1107009.D	Std7-100/1000 ppb	ICAL	1	11/08/17 12:34 AM
C1107010.D	Std8-200/2000 ppb	ICAL	1	11/08/17 12:40 AM
C1107011.D	ICV	ICV	1	11/08/17 12:45 AM
C1107012.D	ICB	ICB	1	11/08/17 12:51 AM
C1107013.D	LLICV	CCV1	1	11/08/17 12:56 AM
C1107014.D	ICSA1	ICSA	1	11/08/17 1:02 AM
C1107015.D	ICSAB1	ICSAB	1	11/08/17 1:08 AM
C1107016.D	LLICV	CCV1	1	11/08/17 1:13 AM
C1107017.D	MB-64448	MBLK	1	11/08/17 1:19 AM
C1107018.D	LCS-64448	LCS	1	11/08/17 1:25 AM
C1107019.D	N026662-001B	SAMP	1	11/08/17 1:30 AM
C1107020.D	N026662-001B	SAMP	5	11/08/17 1:36 AM
C1107021.D	N026662-001B	SAMP	25	11/08/17 1:42 AM
C1107022.D	N026662-001B-PS	PS	1	11/08/17 1:47 AM
C1107023.D	N026662-001B-PS	PS	5	11/08/17 1:53 AM
C1107024.D	N026662-001B-MS	MS	1	11/08/17 1:58 AM
C1107025.D	N026662-001B-MS	MS	5	11/08/17 2:04 AM
C1107026.D	N026662-001B-MSD	MSD	1	11/08/17 2:10 AM
C1107027.D	CCV1	CCV	1	11/08/17 2:15 AM
C1107028.D	CCB1	CCB	1	11/08/17 2:21 AM
C1107029.D	N026662-001B-MSD	MSD	5	11/08/17 2:27 AM
C1107030.D	N026690-001B	SAMP	1	11/08/17 2:32 AM
C1107031.D	N026690-001B	SAMP	5	11/08/17 2:38 AM
C1107032.D	N026690-002B	SAMP	1	11/08/17 2:43 AM
C1107033.D	N026690-002B	SAMP	5	11/08/17 2:49 AM
C1107034.D	N026707-001B	SAMP	1	11/08/17 2:55 AM
C1107035.D	N026707-001B	SAMP	5	11/08/17 3:00 AM
C1107036.D	N026707-002B	SAMP	1	11/08/17 3:06 AM
C1107037.D	N026707-002B	SAMP	5	11/08/17 3:12 AM
C1107038.D	N026707-003B	SAMP	1	11/08/17 3:17 AM
C1107039.D	CCV2	CCV	1	11/08/17 3:23 AM
C1107040.D	CCB2	CCB	1	11/08/17 3:29 AM
C1107041.D	N026707-003B	SAMP	5	11/08/17 3:34 AM
C1107042.D	N026707-007B	SAMP	1	11/08/17 3:40 AM

INJECTION LOG: 171107C

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
C1107043.D	N026707-007B	SAMP	5	11/08/17 3:46 AM
C1107044.D	N026707-008B	SAMP	1	11/08/17 3:51 AM
C1107045.D	N026707-008B	SAMP	5	11/08/17 3:57 AM
C1107046.D	N026738-001B	SAMP	1	11/08/17 4:03 AM
C1107047.D	N026738-001B	SAMP	5	11/08/17 4:08 AM
C1107048.D	N026738-002B	SAMP	1	11/08/17 4:14 AM
C1107049.D	N026738-002B	SAMP	5	11/08/17 4:20 AM
C1107050.D	N026738-003B	SAMP	1	11/08/17 4:25 AM
C1107051.D	CCV3	CCV	1	11/08/17 4:31 AM
C1107052.D	CCB3	CCB	1	11/08/17 4:37 AM
C1107053.D	N026738-003B	SAMP	5	11/08/17 4:42 AM
C1107054.D	N026738-005B	SAMP	1	11/08/17 4:48 AM
C1107055.D	N026738-005B	SAMP	5	11/08/17 4:53 AM
C1107056.D	N026738-005B	SAMP	25	11/08/17 4:59 AM
C1107057.D	N026738-001B	SAMP	25	11/08/17 5:05 AM
C1107058.D	N026707-001B	SAMP	25	11/08/17 5:11 AM
C1107059.D	N026707-007B	SAMP	25	11/08/17 5:15 AM
C1107060.D	N026707-008B	SAMP	25	11/08/17 5:21 AM
C1107061.D	N026738-005B	SAMP	50	11/08/17 5:26 AM
C1107062.D	N026738-001B	SAMP	50	11/08/17 5:32 AM
C1107063.D	CCV4	CCV	1	11/08/17 5:39 AM
C1107064.D	CCB4	CCB	1	11/08/17 5:44 AM
C1107065.D	LLCCV1	CCV2	1	11/08/17 5:50 AM
C1107066.D	ICSA2	ICSA	1	11/08/17 5:56 AM
C1107067.D	ICSAB2	ICSAB	1	11/08/17 6:01 AM
C1107068.D	RINSE	RINSE	1	11/08/17 6:07 AM
C1107069.D	RINSE	RINSE	1	11/08/17 6:12 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/29/2017 8:20:53**
Prep End Date: **10/29/2017 1:00:00**
Prep Batch **64448** Prep Code: **3010_W_MSDI**

Reviewed/ Date: 11/8/2017
Initials/ Date: 11/8/17
Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**02-11**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-64448	Aqueous		25	☐	0	0	25	1.000		
MB-64448	Aqueous		25	☐	0	0	25	1.000		
N026662-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026662-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026662-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N026690-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026690-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N026707-001B	Water	<2	25	☐	0	0	25	1.000		
N026707-002B	Water	<2	25	☐	0	0	25	1.000		
N026707-003B	Water	<2	25	☐	0	0	25	1.000		
N026707-007B	Water	<2	25	☐	0	0	25	1.000		
N026707-008B	Water	<2	25	☐	0	0	25	1.000		
N026738-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N026738-002B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **10/29/2017 8:20:53**
Prep End Date: **10/29/2017 1:00:00**
Reviewed/ Date: 11/8/2017
Initials/ Date: 11/8/17

Prep Batch **64448** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**02-11**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N026738-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N026738-005B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
8570	HYDROCHLORIC ACID
8736	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-170428	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-170529	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 7 Nov 2017 10:14:25 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	181149.00	0.00	
24 Mg	606879.00	0.00	
25 Mg	80436.50	0.00	
26 Mg	91493.40	0.00	
59 Co	727921.00	0.00	
115 In	1083090.00	0.00	
206 Pb	274868.00	0.00	
207 Pb	240309.00	0.00	
208 Pb	594536.00	0.00	

RSD (%)

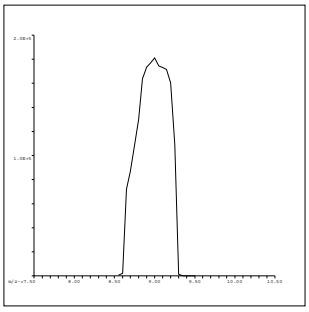
Element	Actual	Required	Flag
9 Be	0.72	5.00	
24 Mg	0.61	5.00	
25 Mg	0.79	5.00	
26 Mg	1.62	5.00	
59 Co	0.82	5.00	
115 In	0.55	5.00	
206 Pb	0.62	5.00	
207 Pb	0.20	5.00	
208 Pb	0.52	5.00	

Ion Ratio

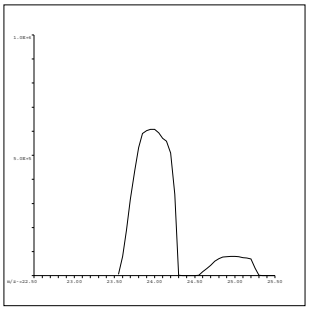
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

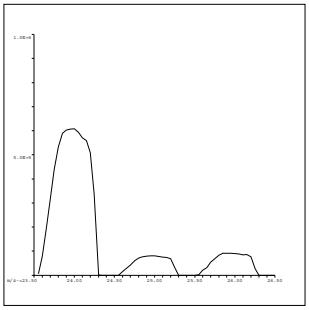
Element	Actual	Required	Flag



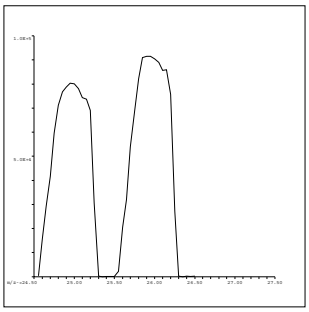
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



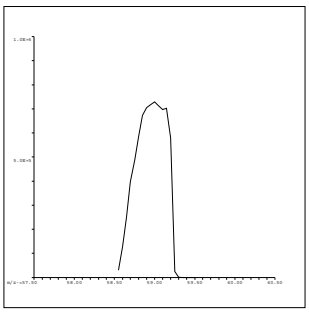
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



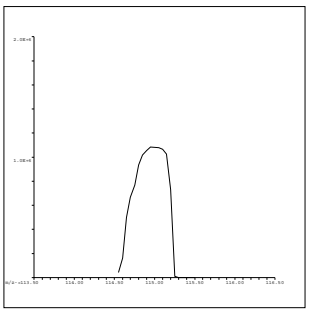
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



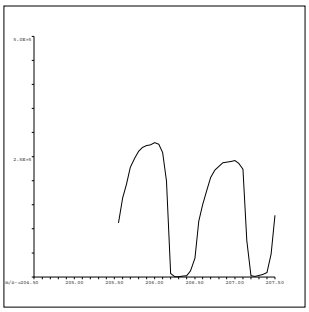
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



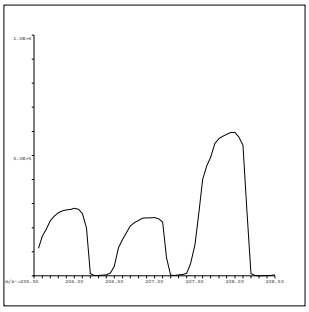
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



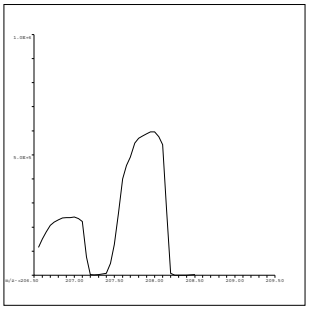
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 171107C

Instrument ID: ICPMS-02

Analyte	Data File	C1107002.D	C1107004.D	C1107005.D	C1107006.D	C1107007.D	C1107008.D	C1107009.D	C1107010.D	
	Acq. Date-Time	11/07/2017 11:54 PM	11/08/2017 12:06 AM	11/08/2017 12:11 AM	11/08/2017 12:17 AM	11/08/2017 12:23 AM	11/08/2017 12:28 AM	11/08/2017 12:34 AM	11/08/2017 12:40 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	110147.4	104716.9	101913.4	100692.7	100205.9	100076.1	100838.2	102176.3	
55 Mn [2]	CPS	97.9	2586.3	21954.9	42987.6	83762.6	165390.6	409859.5	818770.2	1.0000
52 Cr [2]	CPS	302.2	4705.2	44755.3	82910.4	165160.5	323741.2	806976.3	1637473.6	1.0000
72 Ge (ISTD) [1]	CPS	90883.8	88447	86418	85960	85385.9	84173.2	83586.8	85496.6	
78 Se [1]	CPS	0	185.6	1740.2	3420.5	6828.4	13504	33393.5	68064.2	1.0000
103 Rh (ISTD) [2]	CPS	2229145.7	2154423	2098198.5	2088399.5	2093139.1	2053897	2061884.4	2089678.4	
95 Mo [2]	CPS	62.2	2698.1	25868.5	51656.8	101165.4	201522.7	504806.6	1022564.2	1.0000

Standard Code
ICAL: 2MSST-170620B
ICAL: 2MSST-170620C
ICAL: 2MWST-170428A
IS Mix: 2MSST-170701A

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **ICV**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.575	0.50	100.0	0	102	90	110				
Molybdenum	10.481	0.50	10.00	0	105	90	110				
Selenium	9.658	0.50	10.00	0	96.6	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **ZZZZZZ**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.517	0.50	0.5000	0	103	80	120				
Molybdenum	0.552	0.50	0.5000	0	110	80	120				
Selenium	0.466	0.50	0.5000	0	93.2	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCV**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.600	0.50	20.00	0	103	90	110				
Molybdenum	19.811	0.50	20.00	0	99.1	90	110				
Selenium	19.421	0.50	20.00	0	97.1	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCV**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.848	0.50	20.00	0	104	90	110				
Molybdenum	19.597	0.50	20.00	0	98.0	90	110				
Selenium	20.078	0.50	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCV**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.148	0.50	20.00	0	106	90	110				
Molybdenum	19.826	0.50	20.00	0	99.1	90	110				
Selenium	19.703	0.50	20.00	0	98.5	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCV**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.888	0.50	20.00	0	104	90	110				
Molybdenum	19.567	0.50	20.00	0	97.8	90	110				
Selenium	19.601	0.50	20.00	0	98.0	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **ZZZZZZ**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.536	0.50	0.5000	0	107	70	130				
Molybdenum	0.498	0.50	0.5000	0	99.7	70	130				
Selenium	0.514	0.50	0.5000	0	103	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ICV**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.097	1.0	10.00	0	101	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ZZZZZZ**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.992	1.0	1.000	0	99.2	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCV**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.584	1.0	20.00	0	103	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCV**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.161	1.0	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCV**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.108	1.0	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCV**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.865	1.0	20.00	0	99.3	90	110				

Sample ID **LLCCV1**	SampType: **CCV2**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ZZZZZZ**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.990	1.0	1.000	0	99.0	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **ICB**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.172	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCB**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.073	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCB**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.058	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCB**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.045	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **119100**
Client ID: **CCB**	Batch ID: **R119100**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.040	0.50									
Selenium	0.029	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ICB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **CCB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **119100**
Client ID: **ICSA** Batch ID: **R119100** TestNo: **EPA 6020** Analysis Date: **11/8/2017** SeqNo: **2826201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	0.067	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **119100**
Client ID: **ICSAB** Batch ID: **R119100** TestNo: **EPA 6020** Analysis Date: **11/8/2017** SeqNo: **2826202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.523	0.50	20.00	0	92.6	80	120				
Molybdenum	22.066	0.50	20.00	0	110	80	120				
Selenium	18.086	0.50	20.00	0	90.4	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **119100**
Client ID: **ICSA** Batch ID: **R119100** TestNo: **EPA 6020** Analysis Date: **11/8/2017** SeqNo: **2826253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **119100**
Client ID: **ICSAB** Batch ID: **R119100** TestNo: **EPA 6020** Analysis Date: **11/8/2017** SeqNo: **2826254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.136	0.50	20.00	0	95.7	80	120				
Molybdenum	22.140	0.50	20.00	0	111	80	120				
Selenium	17.575	0.50	20.00	0	87.9	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ICSA**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.070	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ICSAB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.767	1.0	20.00	0	98.8	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ICSA**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.078	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **119099**
Client ID: **ICSAB**	Batch ID: **R119099**	TestNo: **EPA 6020**		Analysis Date: **11/8/2017**	SeqNo: **2826197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.613	1.0	20.00	0	98.1	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	110147.4	110147.4	100	PASS	70-125	90883.8	90883.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	107860.8	110147.4	97.92	PASS	70-125	91948.9	90883.8	101.17	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	104716.9	110147.4	95.07	PASS	70-125	88447	90883.8	97.32	PASS	70-125
Std3-5/50 ppb	ICAL	1	101913.4	110147.4	92.52	PASS	70-125	86418	90883.8	95.086	PASS	70-125
Std4-10/100 ppb	ICAL	1	100692.7	110147.4	91.42	PASS	70-125	85960	90883.8	94.58	PASS	70-125
Std5-20/200 ppb	ICAL	1	100205.9	110147.4	90.97	PASS	70-125	85385.9	90883.8	93.95	PASS	70-125
Std6-40/400 ppb	ICAL	1	100076.1	110147.4	90.86	PASS	70-125	84173.2	90883.8	92.62	PASS	70-125
Std7-100/1000 ppb	ICAL	1	100838.2	110147.4	91.55	PASS	70-125	83586.8	90883.8	91.97	PASS	70-125
Std8-200/2000 ppb	ICAL	1	102176.3	110147.4	92.76	PASS	70-125	85496.6	90883.8	94.072	PASS	70-125
ICV	ICV	1	97769.2	110147.4	88.76	PASS	70-125	84431.8	90883.8	92.9	PASS	70-125
ICB	ICB	1	100858.4	110147.4	91.57	PASS	70-125	86436.9	90883.8	95.11	PASS	70-125
LLICV	CCV1	1	100344.5	110147.4	91.1	PASS	70-125	86104	90883.8	94.74	PASS	70-125
ICSA1	ICSA	1	114896.5	110147.4	104.31	PASS	70-125	89334.1	90883.8	98.29	PASS	70-125
ICSAB1	ICSAB	1	121600.5	110147.4	110.4	PASS	70-125	96427.3	90883.8	106.1	PASS	70-125
LLICV	CCV1	1	120157.8	110147.4	109.09	PASS	70-125	103827.8	90883.8	114.24	PASS	70-125
MB-64448	MBLK	1	110608.5	110147.4	100.42	PASS	70-125	95105.1	90883.8	104.64	PASS	70-125
LCS-64448	LCS	1	106051.6	110147.4	96.28	PASS	70-125	91623	90883.8	100.81	PASS	70-125
N026662-001B	SAMP	1	111097.9	110147.4	100.86	PASS	70-125	87629.5	90883.8	96.42	PASS	70-125
N026662-001B	SAMP	5	115242.8	110147.4	104.63	PASS	70-125	93653.3	90883.8	103.05	PASS	70-125
N026662-001B	SAMP	25	114790.5	110147.4	104.22	PASS	70-125	97499.4	90883.8	107.28	PASS	70-125
N026662-001B-PS	PS	1	113922.1	110147.4	103.43	PASS	70-125	88803.2	90883.8	97.71	PASS	70-125
N026662-001B-PS	PS	5	114501.1	110147.4	103.95	PASS	70-125	94107.4	90883.8	103.55	PASS	70-125
N026662-001B-MS	MS	1	114407.7	110147.4	103.87	PASS	70-125	88931.8	90883.8	97.85	PASS	70-125
N026662-001B-MS	MS	5	114499.5	110147.4	103.95	PASS	70-125	93086.6	90883.8	102.42	PASS	70-125
N026662-001B-MSD	MSD	1	111405.7	110147.4	101.14	PASS	70-125	83348.6	90883.8	91.71	PASS	70-125
CCV1	CCV	1	117319.2	110147.4	106.51	PASS	70-125	95933.9	90883.8	105.56	PASS	70-125
CCB1	CCB	1	117560	110147.4	106.73	PASS	70-125	99247.3	90883.8	109.2	PASS	70-125
N026662-001B-MSD	MSD	5	111208.5	110147.4	100.96	PASS	70-125	91586.4	90883.8	100.77	PASS	70-125
N026690-001B	SAMP	1	103333.7	110147.4	93.81	PASS	70-125	89260.4	90883.8	98.21	PASS	70-125
N026690-001B	SAMP	5	105386.3	110147.4	95.68	PASS	70-125	89803.3	90883.8	98.81	PASS	70-125
N026690-002B	SAMP	1	101597.5	110147.4	92.24	PASS	70-125	87292.1	90883.8	96.048	PASS	70-125
N026690-002B	SAMP	5	101401.7	110147.4	92.06	PASS	70-125	85744	90883.8	94.34	PASS	70-125
N026707-001B	SAMP	1	98719.5	110147.4	89.62	PASS	70-125	84784	90883.8	93.29	PASS	70-125
N026707-001B	SAMP	5	98594.8	110147.4	89.51	PASS	70-125	85020.9	90883.8	93.55	PASS	70-125
N026707-002B	SAMP	1	96409.2	110147.4	87.53	PASS	70-125	83176.8	90883.8	91.52	PASS	70-125
N026707-002B	SAMP	5	96207.5	110147.4	87.34	PASS	70-125	83662.7	90883.8	92.055	PASS	70-125
N026707-003B	SAMP	1	92344.1	110147.4	83.84	PASS	70-125	81434.6	90883.8	89.6	PASS	70-125
CCV2	CCV	1	96643	110147.4	87.74	PASS	70-125	85497.9	90883.8	94.074	PASS	70-125
CCB2	CCB	1	94755.2	110147.4	86.026	PASS	70-125	83035.5	90883.8	91.36	PASS	70-125
N026707-003B	SAMP	5	88121.9	110147.4	80.004	PASS	70-125	78973.9	90883.8	86.9	PASS	70-125
N026707-007B	SAMP	1	92728.8	110147.4	84.19	PASS	70-125	82320	90883.8	90.58	PASS	70-125

INTERNAL STANDARD: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N026707-007B	SAMP	5	91626.4	110147.4	83.19	PASS	70-125	83109.4	90883.8	91.45	PASS	70-125
N026707-008B	SAMP	1	89918.1	110147.4	81.63	PASS	70-125	81796.2	90883.8	90.001	PASS	70-125
N026707-008B	SAMP	5	89968.2	110147.4	81.68	PASS	70-125	82454.1	90883.8	90.72	PASS	70-125
N026738-001B	SAMP	1	96150.9	110147.4	87.29	PASS	70-125	87432.4	90883.8	96.2	PASS	70-125
N026738-001B	SAMP	5	90988.5	110147.4	82.61	PASS	70-125	83516.1	90883.8	91.89	PASS	70-125
N026738-002B	SAMP	1	90734.9	110147.4	82.38	PASS	70-125	82877.4	90883.8	91.19	PASS	70-125
N026738-002B	SAMP	5	91751.8	110147.4	83.3	PASS	70-125	84118.1	90883.8	92.56	PASS	70-125
N026738-003B	SAMP	1	88941.2	110147.4	80.75	PASS	70-125	82155.9	90883.8	90.4	PASS	70-125
CCV3	CCV	1	91932.3	110147.4	83.46	PASS	70-125	84198.3	90883.8	92.64	PASS	70-125
CCB3	CCB	1	86368.2	110147.4	78.41	PASS	70-125	79569.8	90883.8	87.55	PASS	70-125
N026738-003B	SAMP	5	82776	110147.4	75.15	PASS	70-125	77821.5	90883.8	85.63	PASS	70-125
N026738-005B	SAMP	1	89151.9	110147.4	80.94	PASS	70-125	82420.6	90883.8	90.69	PASS	70-125
N026738-005B	SAMP	5	87190.1	110147.4	79.16	PASS	70-125	80435.1	90883.8	88.5	PASS	70-125
N026738-005B	SAMP	25	84479.9	110147.4	76.7	PASS	70-125	79024.8	90883.8	86.95	PASS	70-125
N026738-001B	SAMP	25	82992.4	110147.4	75.35	PASS	70-125	78759.2	90883.8	86.66	PASS	70-125
N026707-001B	SAMP	25	82675	110147.4	75.059	PASS	70-125	74582.9	90883.8	82.064	PASS	70-125
N026707-007B	SAMP	25	85240.1	110147.4	77.39	PASS	70-125	79886.7	90883.8	87.9	PASS	70-125
N026707-008B	SAMP	25	85055.2	110147.4	77.22	PASS	70-125	79842.3	90883.8	87.85	PASS	70-125
N026738-005B	SAMP	50	85614.1	110147.4	77.73	PASS	70-125	79212.1	90883.8	87.16	PASS	70-125
N026738-001B	SAMP	50	85666.6	110147.4	77.77	PASS	70-125	79878.9	90883.8	87.89	PASS	70-125
CCV4	CCV	1	83261.6	110147.4	75.59	PASS	70-125	75887.8	90883.8	83.5	PASS	70-125
CCB4	CCB	1	81747.5	110147.4	74.22	PASS	70-125	76047.9	90883.8	83.68	PASS	70-125
LLCCV1	CCV2	1	82114.8	110147.4	74.55	PASS	70-125	75991	90883.8	83.61	PASS	70-125
ICSA2	ICSA	1	95947.4	110147.4	87.11	PASS	70-125	79932.8	90883.8	87.95	PASS	70-125
ICSAB2	ICSAB	1	105855.6	110147.4	96.1	PASS	70-125	89319.6	90883.8	98.28	PASS	70-125

INTERNAL STANDARD: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	2229145.7	2229145.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	2198938.8	2229145.7	98.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	2154423	2229145.7	96.65	PASS	70-125
Std3-5/50 ppb	ICAL	1	2098198.5	2229145.7	94.13	PASS	70-125
Std4-10/100 ppb	ICAL	1	2088399.5	2229145.7	93.69	PASS	70-125
Std5-20/200 ppb	ICAL	1	2093139.1	2229145.7	93.9	PASS	70-125
Std6-40/400 ppb	ICAL	1	2053897	2229145.7	92.14	PASS	70-125
Std7-100/1000 ppb	ICAL	1	2061884.4	2229145.7	92.5	PASS	70-125
Std8-200/2000 ppb	ICAL	1	2089678.4	2229145.7	93.74	PASS	70-125
ICV	ICV	1	2089839.1	2229145.7	93.75	PASS	70-125
ICB	ICB	1	2136724.3	2229145.7	95.85	PASS	70-125
LLICV	CCV1	1	2095504.6	2229145.7	94.005	PASS	70-125
ICSA1	ICSA	1	2034814.8	2229145.7	91.28	PASS	70-125
ICSAB1	ICSAB	1	2133854.6	2229145.7	95.73	PASS	70-125
LLICV	CCV1	1	2361743.5	2229145.7	105.95	PASS	70-125
MB-64448	MBLK	1	2238536.2	2229145.7	100.42	PASS	70-125
LCS-64448	LCS	1	2156869.5	2229145.7	96.76	PASS	70-125
N026662-001B	SAMP	1	1893542.7	2229145.7	84.94	PASS	70-125
N026662-001B	SAMP	5	2073985.8	2229145.7	93.039	PASS	70-125
N026662-001B	SAMP	25	2186388.5	2229145.7	98.082	PASS	70-125
N026662-001B-PS	PS	1	1924457	2229145.7	86.33	PASS	70-125
N026662-001B-PS	PS	5	2083420.4	2229145.7	93.46	PASS	70-125
N026662-001B-MS	MS	1	1950476.2	2229145.7	87.5	PASS	70-125
N026662-001B-MS	MS	5	2082578.7	2229145.7	93.42	PASS	70-125
N026662-001B-MSD	MSD	1	1869943.7	2229145.7	83.89	PASS	70-125
CCV1	CCV	1	2331571.8	2229145.7	104.59	PASS	70-125
CCB1	CCB	1	2323013	2229145.7	104.21	PASS	70-125
N026662-001B-MSD	MSD	5	2029662.1	2229145.7	91.051	PASS	70-125
N026690-001B	SAMP	1	1923281.3	2229145.7	86.28	PASS	70-125
N026690-001B	SAMP	5	2057711.6	2229145.7	92.31	PASS	70-125
N026690-002B	SAMP	1	1936277.8	2229145.7	86.86	PASS	70-125
N026690-002B	SAMP	5	2013503.5	2229145.7	90.33	PASS	70-125
N026707-001B	SAMP	1	1847092.2	2229145.7	82.86	PASS	70-125
N026707-001B	SAMP	5	1945330.1	2229145.7	87.27	PASS	70-125
N026707-002B	SAMP	1	1815513.4	2229145.7	81.44	PASS	70-125
N026707-002B	SAMP	5	1894598	2229145.7	84.99	PASS	70-125
N026707-003B	SAMP	1	1717890.7	2229145.7	77.065	PASS	70-125
CCV2	CCV	1	2024132.8	2229145.7	90.8	PASS	70-125
CCB2	CCB	1	1979497.3	2229145.7	88.8	PASS	70-125
N026707-003B	SAMP	5	1779928.5	2229145.7	79.85	PASS	70-125
N026707-007B	SAMP	1	1748717.3	2229145.7	78.45	PASS	70-125

INTERNAL STANDARD: 171107C

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N026707-007B	SAMP	5	1857230.2	2229145.7	83.32	PASS	70-125
N026707-008B	SAMP	1	1734208.5	2229145.7	77.8	PASS	70-125
N026707-008B	SAMP	5	1828924.7	2229145.7	82.046	PASS	70-125
N026738-001B	SAMP	1	1817701	2229145.7	81.54	PASS	70-125
N026738-001B	SAMP	5	1849623.3	2229145.7	82.97	PASS	70-125
N026738-002B	SAMP	1	1751939.2	2229145.7	78.59	PASS	70-125
N026738-002B	SAMP	5	1826647.9	2229145.7	81.94	PASS	70-125
N026738-003B	SAMP	1	1723557.1	2229145.7	77.32	PASS	70-125
CCV3	CCV	1	1909966.9	2229145.7	85.68	PASS	70-125
CCB3	CCB	1	1837739	2229145.7	82.44	PASS	70-125
N026738-003B	SAMP	5	1712210.5	2229145.7	76.81	PASS	70-125
N026738-005B	SAMP	1	1712346	2229145.7	76.82	PASS	70-125
N026738-005B	SAMP	5	1793322.8	2229145.7	80.45	PASS	70-125
N026738-005B	SAMP	25	1814646.6	2229145.7	81.41	PASS	70-125
N026738-001B	SAMP	25	1809502.7	2229145.7	81.17	PASS	70-125
N026707-001B	SAMP	25	1767813.8	2229145.7	79.3	PASS	70-125
N026707-007B	SAMP	25	1822099.3	2229145.7	81.74	PASS	70-125
N026707-008B	SAMP	25	1835327.9	2229145.7	82.33	PASS	70-125
N026738-005B	SAMP	50	1832342.3	2229145.7	82.2	PASS	70-125
N026738-001B	SAMP	50	1817653.9	2229145.7	81.54	PASS	70-125
CCV4	CCV	1	1799587.9	2229145.7	80.73	PASS	70-125
CCB4	CCB	1	1794766.9	2229145.7	80.51	PASS	70-125
LLCCV1	CCV2	1	1799637.4	2229145.7	80.73	PASS	70-125
ICSA2	ICSA	1	1755442.1	2229145.7	78.75	PASS	70-125
ICSAB2	ICSAB	1	1884097.4	2229145.7	84.52	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N026662
Test Method: EPA 6020
Analysis Date: 11/7/2017

Matrix: Groundwater
Batch No.: 64448

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N026662-001B DT 25X	Chromium	ug/L	193.9341	PASS	188.5984	2.83%	10
N026662-001B DT 5X	Manganese	ug/L	2.553434	NA	2.42593	5.26%	10
N026662-001B DT 5X	Molybdenum	ug/L	10.68724	NA	10.50209	1.76%	10
N026662-001B DT 5X	Selenium	ug/L	2.38189	NA	2.189813	8.77%	10

Note: NA - Not applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N026662-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **119100**
Client ID: **ZZZZZZ** Batch ID: **64448** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/8/2017** SeqNo: **2826209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	91.853	0.50	100.0	2.426	89.4	80	120				
Molybdenum	21.625	0.50	10.00	10.50	111	80	120				
Selenium	10.761	0.50	10.00	2.190	85.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N026662
Project: PG&E Topock - GMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N026662-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	119099
Client ID:	ZZZZZZ	Batch ID:	64448	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	11/8/2017	SeqNo:	2826153

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	201.081	5.0	10.00	188.6	125	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

MDL<SPIKE<10XMDL

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL
ANTIMONY	0.100	0.091	0.078	0.067	0.089	0.069	0.088	0.087	0.0100	0.0314
ARSENIC	0.050	0.054	0.045	0.064	0.053	0.047	0.051	0.039	0.0079	0.0249
BARIUM	0.100	0.199	0.158	0.159	0.206	0.167	0.196	0.207	0.0222	0.0699
BERYLLIUM	0.100	0.090	0.089	0.072	0.104	0.077	0.103	0.107	0.0137	0.0431
CADMIUM	0.100	0.105	0.093	0.089	0.122	0.093	0.121	0.122	0.0151	0.0474
CHROMIUM	0.100	0.088	0.096	0.092	0.093	0.085	0.100	0.102	0.0061	0.0193
COBALT	0.100	0.102	0.088	0.084	0.096	0.085	0.104	0.100	0.0084	0.0263
COPPER	0.500	0.789	0.565	0.564	0.559	0.574	0.563	0.596	0.0836	0.2629
IRON	1.000	0.685	0.581	0.566	1.123	0.578	0.843	1.075	0.2394	0.7524
LEAD	0.100	0.108	0.098	0.088	0.116	0.089	0.113	0.112	0.0117	0.0367
MANGANESE	0.100	0.162	0.122	0.123	0.160	0.133	0.156	0.154	0.0177	0.0555
MOLYBDENUM	0.100	0.100	0.095	0.079	0.109	0.080	0.098	0.109	0.0123	0.0386
NICKEL	0.100	0.126	0.095	0.090	0.119	0.105	0.110	0.106	0.0126	0.0396
SELENIUM	0.100	0.113	0.104	0.091	0.104	0.092	0.110	0.110	0.0088	0.0276
SILVER	0.100	0.028	0.065	0.071	0.079	0.076	0.079	0.082	0.0188	0.0590
THALLIUM	0.100	0.084	0.076	0.067	0.091	0.070	0.088	0.087	0.0094	0.0296
URANIUM	0.100	0.099	0.090	0.082	0.104	0.083	0.105	0.106	0.0104	0.0328
VANADIUM	0.100	0.126	0.111	0.110	0.126	0.116	0.123	0.122	0.0068	0.0213
ZINC	0.500	0.930	0.695	0.905	0.781	0.765	0.744	0.810	0.0853	0.2681

Method Detection Limit 2016

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 4/5/2016,4/6/2016
Digestion Date: 4/1/2016
Instrument Name: ICPMS2
Analysts: MEI
Units: ug/L

Analyte	MDL	LOD	ACTUAL LOD	PQL	ACTUAL PQL	% REC
ANTIMONY	0.0314	0.100	0.187	0.50	0.515	103
ARSENIC	0.0249	0.050	0.049	0.10	0.103	103
BARIUM	0.0699	0.250	0.403	1.00	1.245	125
BERYLLIUM	0.0431	0.100	0.185	0.50	0.524	105
CADMIUM	0.0474	0.100	0.174	0.50	0.501	100
CHROMIUM	0.0193	0.075	0.321	1.00	0.973	97
COBALT	0.0263	0.100	0.163	0.50	0.475	95
COPPER	0.2629	0.500	0.328	1.00	1.062	106
IRON	0.7524	2.500	0.605	10.00	11.338	113
LEAD	0.0367	0.100	0.343	1.00	1.018	102
MANGANESE	0.0555	0.050	0.193	0.50	0.605	121
MOLYBDENUM	0.0386	0.050	0.247	0.50	0.660	132
NICKEL	0.0396	0.050	0.341	1.00	1.002	100
SELENIUM	0.0276	0.050	0.170	0.50	0.502	100
SILVER	0.0590	0.050	0.247	1.00	1.029	103
THALLIUM	0.0296	0.050	0.186	0.50	0.549	110
URANIUM	0.0328	0.050	0.181	0.50	0.533	107
VANADIUM	0.0213	0.050	0.221	1.00	0.873	87
ZINC	0.2681	0.500	3.286	10.00	10.085	101